

Tuesday, 8 December 2020

(10.00 am)

SIR BRIAN LANGSTAFF: *(Audio not available)* ... anyone else because of Covid restrictions, I'm sorry that we have to restrict members of the public at the moment from coming to watch you in this location. They are, however, watching remotely, and we will have somewhere between 150 and 200 people, I would expect, watching what you are saying, able to tune in, or, for that matter, tune out, any time during the day. So that's your audience, if you like, the public in whose name this Inquiry is brought.

So, Mary, one of the members of staff, will now ask you to take the oath and then Ms Richards will ask you questions.

PROFESSOR IAN MALCOLM HANN, sworn

Questioned by MS RICHARDS

MS RICHARDS: Good morning, Professor Hann. Can you see and hear me?

A. Very well, thank you.

Q. I'm just going to ask you to give us an overview of your career. You undertook various house officer posts, I think, from 1972 onwards, and in the 70s you worked at the Royal Infirmary in Liverpool, Alder Hey Hospital and Manchester; is that right?

1

membership exams in pathology during that period, round about 1981.

I spent a couple of months, two or three months, with Dr Kernoff and Professor Tuddenham at the beginning of that rotation, and the rest of the time I spent one year in pure haematopoiesis research, and the rest of the time in bone marrow transplant and leukaemia, almost entirely in adults but there were a few children.

Q. When you took up your post then in the Royal Hospital for Sick Children in Glasgow in January 1983, how much experience would you say you had had by that stage in the treatment of patients with bleeding disorders?

A. Apart from the fact that I'd had a gap of about 20 months, when I was mainly dealing with adults, with -- and doing research into leukaemia, bone marrow transplants, et cetera, I'd spent roughly, I would say, six or seven years, with exposure throughout the vast majority of that time, in haemostasis centres.

But of course I also -- during that period, I had to spend a year in neonatal training and a few months in other areas of -- well, six to 12 months in other areas of paediatric training, general paediatric training.

Q. Had you spent any time in a Regional Transfusion

3

A. Royal Manchester Children's Hospital, yes.

Q. In any of those posts, did your work involve the care and treatment of patients with bleeding disorders?

A. I was in five separate haemophilia centres on six separate occasions. In Manchester, Liverpool, Great Ormond Street, the Royal Free and Liverpool Royal Infirmary.

Q. Prior to your appointment to the Royal Free, which I'll come on to, were those rotational posts that you were undertaking? Did you also work in other areas?

A. I worked in many other areas, particularly childhood malignancy, blood diseases, leukaemia in particular, and also I was doing my general paediatric training for seven years, and also pre-registration house jobs with Sir David Weatherall in Liverpool in haematology.

Q. So your first time at Great Ormond Street I think was 1978 to 1980, and then you moved to the Royal Free in 1980 and worked there until the end of 1982.

A. That's correct, yes.

Q. In terms of your work at the Royal Free, what did that entail?

A. Again, it was a rotational thing because I was the first person to fully train in paediatrics and in haematology. I had to carry on training in adult haematology in particular until I took my final

2

Centre?

A. Oh, yes, sorry. Yes, I spent a year -- in fact, in those days we were mandated to spend that period of time in Brentwood, and it was Edgware in those days, which moved later on to Colindale in north-west and north-east London.

Q. Can you recall roughly when that was?

A. It would be -- it would be some time in the late 1970s. I can't remember exactly.

Q. You remained in post at Yorkhill until around August of 1987, when you moved to Great Ormond Street. Is that correct?

A. That's correct.

Q. Then you were consultant haematologist at Great Ormond Street, paediatric haematologist, from 1987 to 2005?

A. The end of 2005, yes.

Q. You then spent I think roughly three and a half years working for a pharmaceutical company, for Bayer?

A. I worked for four years with Bayer, developing longer-acting Factor VIII concentrates and the recombinant products and developing the new oral anticoagulant.

Q. Then in 2000 or thereabouts you took up a post with the Irish Blood Transfusion Service as a paediatric haematologist?

4

1 A. No, it was somewhat later than that. I had a period
2 of time when I was -- between 2006 and 2010 I was at
3 Bayer -- or the end of 2009, and then we moved to
4 Ireland. My wife is a consultant here. And about six
5 to 12 months later I took up a post as an intermittent
6 locum and then a job share with the Irish Blood
7 Transfusion Service, during which I spent six months
8 as the national director.

9 Q. Now, I'm going to turn now to ask you some questions
10 about the centre or the service at Yorkhill and your
11 experiences when you arrived there in 1983.

12 When you took up your post, what was your
13 impression of the service which you were taking on
14 responsibility for?

15 A. Basically I found myself in the eye of a storm with
16 not much calm. Dr Willoughby I had great respect for.
17 He was a real workaholic and tended, to an extent, to
18 plough his own furrow, to be a lone practitioner. It
19 was very seriously under-resourced. Much of -- in
20 fact, all of the junior or trainee staff were put in
21 place by himself through charity and there were many
22 challenges. I had seven areas of responsibility, of
23 which haemophilia was one, and there were deficiencies
24 in many areas which needed to be corrected, some of
25 which were immediate safety issues.

5

1 well, I should have realised but I didn't fully
2 realise how difficult medical politics could be.
3 I was never very good at it, to be honest. But I was
4 faced with battles on all fronts.

5 The immediate problem was that we didn't always
6 get cover on the senior registrar haematology
7 rotation. The adult trainees who needed to spend
8 a few months with us, there were gaps when the
9 staffing level was very poor. We had one person who
10 was appointed as a leukaemia research fellow but in
11 fact provided the clinical service. There was
12 a threat initially, quite rightly in my view, from the
13 Leukaemia Research Fund, that those posts -- which
14 were essentially training posts -- would be removed.
15 And the rest of the service was provided by clinical
16 assistants, mainly on charitable money.

17 There was a shortage of social work and some
18 resistance to the introduction of social work input.
19 And there was no haemophilia centre. There was a lack
20 of follow-up in certain areas. For instance, there
21 was no multidisciplinary approach at all to the
22 management of brain tumours. There was no follow-up
23 regularly for children with haemophilia. There was no
24 follow-up for the late effects of treatment of
25 chemotherapy and radiation. So all those things had

7

1 Q. What were the immediate safety issues that required
2 correction?

3 A. The laboratory, basically, was failing. And one of
4 the main reasons why Dr Willoughby, as he told me,
5 left was because of industrial actions throughout
6 Scotland in the laboratories whereby the medics --
7 there was an intention to sideline the medics.

8 Basically, the quality control was inadequate
9 and was repeatedly failing. The equipment was
10 extremely old fashioned and, even in my experience,
11 I couldn't remember its use. There was no
12 computerisation. There was no adequate blood count
13 machinery. The neonatal coagulation testing was very
14 poor or inadequate or completely inadequate, despite
15 the fact that we had a world-famous foetal medicine
16 unit on site. Even, for instance, in blood
17 transfusion we didn't even have any Coombs (unclear),
18 which are the basics of cross-matching.

19 So a great deal needed to be done in that area
20 with regard to safety. And with regard to other areas
21 there were concerns over whether we had adequate cover
22 to a trainee staff level.

23 Q. What changes did you introduce in relation to
24 staffing?

25 A. It was very difficult. I didn't realise when I --

6

1 to be sorted out and three new clinics set up within
2 a few weeks or months.

3 I was supported with that but running that
4 level of department with that number of problems was
5 extremely difficult.

6 Q. In terms of clinical staff, I think there came
7 a point, in 1984, when Dr Gibson joined; is that
8 correct?

9 A. Yes. That was a great relief.

10 Q. In terms of facilities, what can you recall about the
11 efforts made to improve the facilities and any moves
12 in relation to the facilities for the haemophilia
13 service?

14 A. Well, with regard to the haemophilia service, it was
15 really personnel that initially I could do something
16 about. There was no space within the hospital offered
17 to me. I did try very hard to set up a -- we had no
18 haemophilia centre, essentially, and we had to rely on
19 multi-use areas in the day care centre, and thankfully
20 I was able -- I was facilitated in setting up a clinic
21 which I could run every week if necessary, and at
22 periods that did happen.

23 Basically, with regard to facilities, from the
24 very outset I started fund-raising. We were a bone
25 marrow transplant centre. We were essentially

8

a national bone marrow transplant centre with very, very limited resources. So with Dr Alan Burnett, later Professor Burnett at the Royal Infirmary, I had to fund raise with him and approach the Health Minister in Scotland to get designation and funding. I had to spend far too much time fund-raising, pushing over piles of pennies in pubs and such like and eventually we were able to expand the laboratory and expand the office and data collection services. But it still meant that the clinical -- and also, by the way, when I first came I did not have any real designated beds and the service previously had relied upon the general paediatricians bolstering Dr Willoughby's expertise in haematology, and I was rather taken aback to find that they were taking decisions about my patients and that I didn't have a designated facility with fully trained nurses in any areas.

So I had to address all of those problems, but I wasn't able, initially, Dr Gibson was more successful later on I'm pleased to say in setting up a haemophilia centre, but the lack of facilities was pretty widespread throughout the United Kingdom at the time.

When I went to Great Ormond Street in 1988 we

9

cardiology, but other areas like infectious diseases and such like, hepatology, et cetera, were very lacking, and the consequence was that I had to rely on expertise from elsewhere.

Q. One of the changes you instituted, which indeed Dr Pettigrew described to the Inquiry yesterday, was the establishment of some form of regular clinic system for patients with bleeding disorders. How often on average in 1983/1984 would a patient with severe haemophilia, whether haemophilia A or haemophilia B, have attended for a routine appointment once you had set up this system?

A. Yes, routine clinic visits in haemophilia were not the absolute standard everywhere, but I was fortunate to have worked at the Royal Free where it was and, basically, I adopted a lot of their policies in inverted commas, such that if a patient was, say, a moderate haemophilia or a mild one I would expect to see them every year. They had very often not been seen for years previously.

With severe haemophilia it depended on the degree of severity and the degree of crippling, the degree of haemarthrosis that they had. I would expect to see them hopefully at least twice year, certainly every year, and for some of them it was required more

11

had a converted store cupboard basically as our haemophilia centre and nothing else.

Q. You observe in your statement also about your time in Yorkhill that there were no specialists in the areas of infectious disease, hepatology, immunology or virology. What was the impact of that?

A. It was very difficult. I'd come from an ivory tower into a situation where Scotland -- I had to say that the Health Service in Scotland always worked better in my experience than it did elsewhere, but one area that was slow, and I experienced the same in Ireland I'm afraid, is that developments were slow to come along. One of the biggest gaps was the lack of sub-specialist paediatrics. A lot of that was down to resistance amongst the general paediatric consultant population.

Just taking immunology, for instance, I was not a fully trained immunologist. I'd been fortunate to be at the National Centre at Great Ormond Street. I had very good contacts there but I had to look after the patients with severe combined immune deficiency as well as everything else, also the patients with autoimmune diseases and so I had to rely a great deal on the contacts that I had there.

Within Yorkhill itself there were areas of great expertise in renal medicine, urology,

10

often, say, every four months or so. During the period when we were having to improve communications, something I had to -- also had to work very hard on and didn't do very well with, then it was more frequent than that.

Q. I'll come back --

A. Sorry, also of course there was a completely open door policy with regard to the day care facility and I had great faith in Dr Pettigrew as an excellent communicator.

Q. I will come back later, Professor Hann, to ask you more about issues of communication.

In terms of Dr Willoughby's departure, other than the issue over industrial action to which you've already referred, what was your understanding of Dr Willoughby's reasons for moving and for leaving Yorkhill?

A. I think -- I only ever had a relatively brief conversation with him lasting perhaps 20 minutes or so. In that, he explained how despairing he was of the industrial or the threatened -- it never actually happened -- the threatened industrial action but also he was -- he had problems with a microbiologist consultant who had tried to pioneer rather pseudo scientific treatment of children with solid tumours

12

1 using interferon, which was a flavour of the month for
2 a period of time in the UK, and also he had struggled
3 with resources and felt that he wasn't supported
4 enough in regard to facilities and staffing and
5 suchlike and had had to resort to the use of extremely
6 generous charitable money, which I was quite surprised
7 to find when I arrived and was just coming in when
8 I had been asking for it. People in the West of
9 Scotland were incredibly generous.

10 **Q.** What were the out-of-hours arrangements from early
11 1983 onwards, particularly insofar as they would
12 affect patients with bleeding disorders?

13 **A.** Out-of-hours, the -- well, basically I was on call all
14 the time. I had one week off during my first year
15 there. It was supposed to be two weeks. I was called
16 back after one week and there was no more cover from
17 another hospital in that respect.

18 The patients who required -- most of the
19 patients Dr Willoughby had very successfully started
20 on home therapy and so we didn't see a great number of
21 patients. It was really very infrequent for them to
22 come up out-of-hours. They were seen on the ward
23 usually and very occasionally in the casualty by the
24 on-call person who would be one of the rotating senior
25 registrars from the Royal Infirmary or Western General

13

1 properly resourced. Often one ran up against the
2 great needs of other areas of paediatrics.
3 **Q.** You said in your statement that Scotland was slow to
4 emerge in specialised paediatric care.

5 Can you elaborate upon that, particularly by
6 reference to what you saw the position in Scotland to
7 be at the time.

8 **A.** Yes. I mean, as I said, I think that the Scottish
9 Health Service worked incredibly well but it -- and it
10 is a relatively small country, very similar in size to
11 Ireland, and therefore you know if you work in a much
12 larger country there is much more drive towards
13 specialisation and regionalisation, if you like, as we
14 used to call it. Within Scotland itself, there was
15 a lot of resistance to the development -- I can give
16 you an example, paediatric oncology, really it took
17 years and years after I -- even after I left, for that
18 to be resolved adequately.

19 There was a tendency for surgeons to go their
20 own way when managing solid tumour patients, often
21 quite inappropriately, and really it's a question of
22 how fast the Health Service responds to need, to
23 developments and it was slow to develop -- to respond
24 to developments like, for instance, bone marrow
25 transplantation. Great Ormond Street itself didn't

15

1 Hospital or the Leukaemia Research Fellow on-call.
2 You know, it was very difficult to fulfil the
3 on-call rotas adequately.

4 **Q.** Do you know why the services at Yorkhill had been
5 arranged or existed in such a way as to, as it were,
6 lump in the care of patients with bleeding disorders
7 with all paediatric cancer care?

8 **A.** I don't know how that arose but it was pretty similar
9 to what happened in other children's hospitals. It
10 was part of the training, essential training, of
11 course for senior registrars in haematology who were
12 usually adult trainees, although some paediatricians
13 came along later.

14 It was, along with solid tumours which at the
15 time were also looked after by persons like me,
16 although I had some, quite a lot of training in
17 management of children with solid tumours, it took
18 a long time to get a paediatric oncologist on board in
19 Glasgow. There was a lot of resistance.

20 So you know there was -- these were, if you
21 like, relatively new specialties. The specialty of
22 paediatric oncology really didn't exist before 1971
23 but it took a long time with the institution of the
24 UKCCSG but it took a long time thereafter for it to
25 become, if you like, par for the course and to be

14

1 have anything approaching a proper bone marrow
2 transplant unit until the early part of the 1980s
3 despite the fact it had been going on for some years
4 previously.

5 We were designated as a national centre in
6 Scotland in around about 1983 -- sorry, 1985 but it
7 took a lot of effort.

8 **Q.** What did you understand the designation of the
9 haemophilia service at Yorkhill to be within the
10 broader UKHCDO context?

11 **A.** Yes, I think, I don't know what the -- I've been asked
12 this quite a lot and I really don't know the answer in
13 a legal sense. The difficulty I think that arose, and
14 personally I think it's a moot point because if you
15 have children there and they need treatment I don't
16 care what you are designated as, you provide the best
17 available treatment. The fact is that Health Service
18 managers in those days, and probably to this day, do
19 not particularly like designation of specialist
20 centres because specialist centres come with
21 specialist pleading with regard to resources.

22 We were -- as far as my memory takes me, my
23 contract says that I was going to be the director of
24 the haemophilia centre. The patients needed that and
25 we needed to improve the resources as did many other

16

services at the time.

So to answer your question in a round about way, I did not regard ourselves as being a reference centre of the nature that the Royal Free was, which was in fact a designated international reference centre in that it had every possible resource. We were, thanks to Katharine Dormandy and people, we were very under-resourced but we were a haemophilia centre.

I did think that it was a bad idea that the UKHCDO split itself into various tiers and I actually made representations about that on a number of occasions because of the difficulties. You know, it was a whole different area with regard to communication and you relied on meetings and minutes of meetings (although doctors are terrible at minutes of meetings, I have to tell you, at producing them accurately) and, any question of what they actually meant, going back to them often was very difficult because you didn't have any idea what the discussions were.

In the end it became a doctors' organisation and in my view it should have been broader than that, but the fact was that we were a haemophilia centre, we were definitely not a reference centre in the Royal Free sense, but we were invited to some

17

period of time, which is why I needed Dr Gibson to come on board and why I had to spend so much time fighting politics and organisation and resource management and all the rest of it. It was -- I tried my best, but the biggest problem that I saw was with regard to communications. And I thought that I put in place adequate ways of dealing with that, because of my repeated absences from the scene, but clearly it was not adequate.

Q. Now, one of the first tasks you took on when you joined Yorkhill was to produce standard operating procedures or written protocols or policies.

As I understand it, you produced those across the range of your various different responsibilities; is that right?

A. Yes. It took a great deal of time. My family certainly didn't appreciate it.

There were no standard operating policies in the department other than the protocols that were produced for the treatment of leukaemia essentially. I needed to begin at step 1 from the very beginning and write those policies out. It took, in the end, between -- well, certainly up to six months to do that.

I think that they were very valuable. People

19

directors' meetings.

Q. You did attend, I think, the annual general meeting from October 1983 onwards, representing Yorkhill. The earlier minutes seem to suggest that Dr Willoughby did not attend. Do you know why? Was anything about that ever raised with you?

A. No, it wasn't, but I knew him quite well actually, and he attended a lot of meetings about leukaemia and bone marrow transplants and all that sort of thing. The fact was, he was a single-handed workaholic. Getting away to London actually improved a lot when we were allowed to use aeroplanes and newfangled things like that, but it was still -- most of these meetings were held in London or even more difficult places to get to. London became relatively easier.

But, to my knowledge, he attended such meetings very infrequently, if at all.

Q. What proportion of your time was spent dealing with bleeding disorder patients as opposed to your multiple other responsibilities in the period from 1983 to 1985?

A. Well, of course it varied enormously depending on the current crisis or acute, say, serious head injury or whatever it might be. It was rarely more than 10 or 20 per cent of my time. And it was an inadequate

18

said so at the time, I don't know if they were being kind or not, but it was certainly essential that they were there, because there were people who were not getting adequate information themselves. Doctors, nurses, et cetera, at the time did not have access, in a time when there was no internet and email and all the rest of it, and when we relied a great deal on attendance at meetings, and very long delay in general publications. So, yes, I regarded it as a very high priority.

Q. It may be difficult for you to remember the detail, and we don't have the texts themselves, but can you recall what the policy or guidelines in relation to the care of patients with bleeding disorders -- can you recall broadly what it said or what its purpose was?

A. Yes. I mean, basically it would be a preamble about the -- a little bit about the history of haemophilia, about how it presents, about the various levels, the various tests and what tests you perform and when. And all of that -- not exactly lifted from the Royal Free and Great Ormond Street but -- mainly the Royal Free -- certainly what was the standard mantra and practice there.

It would also include -- and I know that --

20

I believe that others have explained -- the use of other products such as DDAVP, EACA, tranexamic acid, cryoprecipitate, et cetera, and it would have gone into quite extensive detail on the use of that because, of course, some of them were of real safety concerns when it came to treating children.

Then you would break it down into areas which were actually designated to quite a large extent in the book that I gave out to as many children that I saw as I could living with haemophilia, where it described what was serious, what might not be so serious and what sort of levels you need to achieve, et cetera.

Q. Now, one of the main changes which you instituted in terms of treatment policy was to move away from the use of commercial concentrates and to use almost entirely and, in later years, I think entirely SNBTS concentrates. Can you just tell us a little bit more about your thinking?

A. Yes, I had in fact discussed this briefly with Dr Willoughby, who, as you saw from my statement I hope, basically preferred that, the use of commercial concentrate, because of this purity, essentially, and to a limited extent its availability. I was impressed with the Blood Transfusion

21

short period of time and we changed over.

And I can give you the reasons why if you wish.

Q. Yes, please.

A. Basically, again, I've been asked lots of times if I've watch a television programme -- I'm almost sure I didn't -- that talked about the skid row blood donors et cetera in America. I just didn't have time during that period of much on call and young children et cetera. But I was very well aware, having worked in blood transfusion, of the mantra, which obviously to this very day I still respect as being of vital importance, which is that blood and blood products should be donated by people who are very effectively screened, which they were not in those days, very effectively tested, as far as you can, which they certainly are nowadays, and not in those days, and altruistic and with no inducement whatsoever.

There was no doubt we knew at the time that -- I need to put it in context a little bit, because there's obviously a lot of concern about non-A, non-B hepatitis. All of the concern or almost all of the concern in the early 1980s was of hepatitis B. We know to this day that hepatitis B can still be transmitted. We had a case in Ireland of a blood transfusion donor three years ago. It is still not

23

Service because very soon, within days or a few weeks I had contacted them and asked them what the score was, why are we using all this commercial concentrate -- I mean, it was ironic for me because we had been -- we, I mean the consultants that I worked for in the UK -- had been fighting for years for self-sufficiency, and on many, many occasions I had heard this both formally and informally, and I was told that -- I contacted I think it was Dr Crawford, who was our main liaison, and he was extremely helpful and he said, you know, "If anything, we will give you priority. I can't guarantee you absolute full supply but I think we can do."

So right from the word go, and within days or weeks at the most, I stopped all use of Factor VIII concentrate from abroad.

There was, at some stage, and I've been asked about this a number of times, some residual commercial concentrate. And my memory, which may not be correct, is that we sent this for destruction. Which is quite a difficult decision in one way because it is costly stuff and all that, but that paled into insignificance as far as I was concerned.

So the answer is that the people on home therapy used up their supply within a relatively

22

a solved problem. It certainly wasn't a solved problem then.

So, you know, we knew that the type of donors that were being used in America were very high risk in this context. I could not contemplate continuing the use of commercial concentrate having, ironically, heard for years how much the people in England wished to do so. So yes, I knew -- I felt that it was incredibly important. It was with some dismay that I learned later on that the Health Life questionnaires in Scotland and elsewhere allowed prisoners to donate, another population that we know may not possibly sometimes be altruistic and certainly do have a higher risk of a virally transmitted infection.

Q. You mentioned in your answer a few minutes ago, in relation to your conversation with Dr Crawford, that he said effectively he could accord you a degree of priority or preferential treatment. Was that because yours was a paediatric service?

A. I think so. I mean, I've always tried not to do down adult services but one -- certainly at Great Ormond Street it was commonly the case that Blood Transfusion Services said: yes, we'll give you priority. You know, that's an ethical/moral issue which is difficult to come to terms with sometimes.

24

1 I think that from my vague memory of the
2 conversations with Bob Crawford at the time that he
3 was very keen that we, if you like, came on board and
4 that the Blood Transfusion Service, which was very
5 well run by John Cash and others, that they should be
6 self-sufficient and they should be that very soon.

7 I can talk about self-sufficiency if you want
8 because it's used far too loosely.

9 Q. I might come back to that at a later stage if I may,
10 Professor Hann. I want to focus on Yorkhill
11 specifically for the time being.

12 Your changes in relation to treatment policy as
13 well as switching to SNBTS from commercial
14 concentrates included, I think your statement says,
15 a policy to use factor concentrates conservatively and
16 only when necessary; is that correct?

17 A. Yes. The difficulty in very early 1983, I told you
18 about my knowledge of HIV -- HIV or AIDS before that.
19 Basically, we did not know about dosage effects, about
20 infectivity and suchlike. So I and others,
21 I discussed it with people at the Royal Free and
22 elsewhere, felt that it was a reasonable idea to be
23 more conservative with the use of concentrates, even
24 in those on home treatment.

25 In that respect, you'll know from my statement

25

1 infrequently or not previously treated patients or
2 PUPs or previously very low volume treated,
3 infrequently treated patients.

4 So, yes, there was a change in policy where it
5 was feasible and I am very happy to talk about cryo if
6 it's appropriate to talk about the use of
7 cryoprecipitate at some stage.

8 Q. Yes, my next question, in fact, is going to be what
9 use was made under your new treatment regime from 1983
10 onwards of cryoprecipitate and for which categories of
11 patient?

12 A. Basically I think what you may well have heard before
13 I haven't been able to watch all the evidence. We
14 used it in patients with von Willebrand's disease
15 where it was necessary and DDAVP wasn't appropriate,
16 type 3, type 2B or serious bleeds or where we couldn't
17 get levels down, which was a real problem during this
18 period.

19 We used it in patients with mild haemophilia if
20 the bleed was not serious and we used it in new
21 patients as they came along. It was discussed with
22 patients who were receiving concentrates and there
23 were some who wished to change to cryoprecipitate and
24 my memory is very vague on this. I think there were
25 just one or two, maybe even three, people, families,

27

1 that I actually terminated, after discussion with the
2 families, the prophylaxis in some patients.

3 In retrospect, I very much doubt that that made
4 much difference but the fact was that I could see --
5 I was an initial sceptic. Dr Willoughby was before
6 his time. He took on board the work that others
7 should and I should have taken on board, from Sweden
8 mainly, Dr Yeoman Imanu(?) and Marie Nilsson showing
9 that prophylaxis could work but in the patients that
10 he was treating it wasn't working.

11 Dr Liesner very importantly showed later on
12 that it could work if you persisted and if you gave
13 adequate amounts and you achieved levels above
14 1 per cent. It wasn't working in those patients so at
15 that time I didn't see any need to continue it.

16 I also wanted to be absolutely sure that
17 I didn't beggar the nation's supply on the basis of
18 a treatment that really wasn't working.

19 On the second aspect of this, to cut through
20 the protocols that I wrote, I had very strongly
21 re-emphasised the need to consider the use of
22 alternatives such as DDAVP, et cetera, and for
23 a period of time there was a consensus, I believe, in
24 the people that I spoke to anyway, to use
25 cryoprecipitate for newly diagnosed or very

26

1 who wished to revert to the use cryoprecipitate and as
2 far as I know that did happen. But the use of
3 cryoprecipitate in children is very limited and I can
4 expand on that if you wish.

5 Q. Well, I think your statement addresses it to some
6 extent but what are your particular concerns about the
7 use of cryoprecipitate in children?

8 A. I'm afraid it's going to be a bit of a long answer but
9 I'll try and keep it as short as I can.

10 I think that there was some very important work
11 from Scotland by Charles Forbes in the period when we
12 were switching over to concentrates, when I was
13 a trainee around about 1976, which showed that there
14 was no tendency in reduction in premature death during
15 the cryoprecipitate period, which basically started
16 very soon after I went to medical school in 1966.
17 I think it was talked about in about 1964, something
18 like that.

19 So during that period the commonest cause of
20 death in haemophilia patients was intracranial
21 haemorrhage and, as you probably know, one of the
22 commonest causes or needs for treatment of haemophilia
23 patients in childhood is head injuries. Bearing in
24 mind that initially we did not have access to CT
25 scans, et cetera, and therefore we had to rely on

28

history, signs and symptoms, children who have head injuries, as everyone knows, often are a bit sleepy afterwards. They might vomit. How are you supposed to address that? You address it by giving a treatment which is well tolerated and where you can rely on the dosage being what it actually says on the bottle, which is not the case for cryoprecipitate.

There are problems, obviously, I can talk about home therapy separately if you want because that's a whole separate issue with regard to cryoprecipitate but, basically, cryo was a large volume, it took a lot of time to draw up, it disenfranchised the families who had had their lives revolutionised in the mid -- around about 1976 period.

On top of that, it wasn't a safe treatment. The efficacy was extremely difficult to manage during this period. We had lots of laboratory problems, as did everywhere, with overreaction to the HIV era. It was extremely difficult to get reliable, fast Factor VIII levels, for instance, and so you needed to give cryoprecipitate following a head injury or an internal bleed or severe haemarthrosis, probably every 12 hours and sometimes every eight hours.

It took time to do this, usually up to an hour or more. The volume could not be just passed in, it

29

A. Correct.

Q. In relation to those families who, to the best of your recollection, asked to revert to cryoprecipitate, you did use cryoprecipitate or you did accede to their request?

A. I wouldn't have refused their request no, that's for sure. But, you know, they were aware, many of them. I mean, one of the problems I had and my problems were nothing compared with theirs was that with the -- a lot of these patients had been coming for a number of years. Some of them had already received cryoprecipitate and knew what it was like and so the knowledge to a certain extent was there but not entirely and so it was necessary to make them -- I wouldn't scare them to death and say there's a risk of death with giving this because that risk was very small, but not insignificant. But it would be explained to them what the downsides were. Most of them were already well aware of that.

Q. In terms of the commercial concentrates, do you know what the arrangement had been prior to your arrival in January 1983 to procure commercial concentrates and were there commercial arrangements that you had to terminate?

A. It worked, as far as I remember, like this. There

31

would cause transfusion overload in children.

Finally, round about one third to a half of patients had side effects. These could be very, very frightening for children. They consist of rigours and shakes and feeling dreadful and, occasionally, these could be life-threatening. I had experiences with Dr John Martin in Alder Hey with a patient who developed severe anaphylaxis requiring chlorpheniramine, aminophylline, steroids and adrenaline, and that patient would not have -- would almost certainly not have survived at home. So, you know, with regard to home therapy I can come back to that if you wish. It was, in my view, not an option. I had not, in all those times in haemophilia centres, including (*unclear*), seen anyone who had -- in a young child, had been able to institute home therapy.

So it was a useful treatment, it did help quite a lot, especially for minor bleeding, more minor bleeding disorders, but it was extremely difficult to use in children.

Q. But you did use cryoprecipitate for children with von Willebrand's, you did use it for children with mild or moderate haemophilia if DDAVP was not an option -- is that correct -- because you tried to avoid concentrates?

30

were very, very few occasions on which I needed to do this and my memory is vague, because the only situation in which it would occur was there was one patient who developed an inhibitor and had a massive requirement, and there were several other patients who needed fairly urgent synovectomies done which required a great deal of replacement. So there may have been a few occasions, and very few occasions, on which we reordered commercial concentrate and that would be through the senior chief in the lab in contact with the pharmacy.

I didn't -- it wasn't an era of resource management. I didn't hold budgets or anything like that, and I was never restricted in the use of anything because of financial costs or of that nature.

Q. The evidence we've seen so far tends to suggest that Yorkhill didn't have a system of what other clinicians have referred to as batch dedication, and that that was something that appears to be considered perhaps for the first time in late '84 and early '85. I can take you to some minutes if necessary that refer to that?

A. Yes, no, you are absolutely right. It was later on and, again, I was having very regular -- I can't remember them all or even a small proportion of them.

32

1 I was having very regular discussions with Mark
 2 Crawford who was an excellent liaison and at some
 3 stage or another he did say we -- John Cash and him
 4 had discussed whether we could dedicate batches to
 5 particular patients; in other words, you know, when
 6 they came up for their therapy, whether it be at home
 7 or in the hospital, usually at home, they would be
 8 allocated the batch that was for them.

9 I think it was quite a bit later on. It may
 10 have been in '84, probably was in '84 in fact, that
 11 that occurred and I think that a small number -- in
 12 a small number of patients that's what we received.

13 Q. In terms of the changes that you instituted to the
 14 home therapy programme they were no longer doing it on
 15 a prophylactic basis, how was that change introduced?
 16 Was every patient or family brought into the centre or
 17 was it the next time they attended to collect their
 18 supplies?

19 A. Yes. I mean, these are patients who continued to have
 20 many bleeds, sometimes even on a weekly basis or
 21 whatever. They would be seen in -- I had to rely on
 22 Dr Pettigrew and I relied on her a great deal.
 23 I probably relied on her too much. But the
 24 discussions took place mainly between herself,
 25 Sister Murphy and the family. If the family had said

33

1 been very frequent.

2 Q. Professor Ludlam also told us about meetings that
 3 would take place with the Scottish Home and Health
 4 Department. Are those meetings that you participated
 5 in as far as you can recall?

6 A. It's possible but personally I doubt it because I was
 7 the representative for paediatric haematology and
 8 oncology on these -- I think they called them --
 9 special advisory groups of what was then called the
 10 Home and Health Department. What with everything and
 11 that, I doubt that I would have attended this as well,
 12 but I tried my best to keep up through minutes but
 13 also, more importantly for me, via Gordon Lowe, who
 14 was a really very helpful, always very helpful,
 15 contact at the Glasgow Royal Infirmary.

16 Q. If we go to the second page, please, Soumik, and could
 17 we look at the paragraph in the middle of the page, so
 18 (ii). Just a little bit further down, please.

19 So we can see here Dr Cash has introduced
 20 a paper, various matters are being discussed, and then
 21 at (ii) it says this:

22 "Members discussed the suggestion that the
 23 production of cryoprecipitate could now be reduced.
 24 Dr Ludlam said that cryoprecipitate was preferred in
 25 the treatment of children at present, because of the

35

1 we wish to continue, we would have done so. But
 2 I didn't really see much point, to be honest.

3 I didn't want to run into a situation where we
 4 ran out of concentrate as a consequence. But that
 5 wasn't the main reason.

6 Q. I want to look at one document with you,
 7 Professor Hann.

8 It is PRSE0001556, please, Soumik.

9 A. Will I see that?

10 Q. Yes, it should come up on the screen in a few moments.
 11 Can you see that, professor?

12 A. Yes, I can.

13 Q. So if we just zoom in to -- thank you, Soumik.

14 So we can see it's the minutes of a meeting of
 15 directors of the Scottish National Blood Transfusion
 16 Service and Haemophilia Directors on 2 February 1984.
 17 We can see that you were in attendance.

18 Before we look at the substance of the minutes,
 19 Professor Ludlam last week told us that one of the
 20 features of local arrangements were regular meetings
 21 between haemophilia directors and SNBTS. Is that an
 22 arrangement that you participated in? We can see you
 23 here but did you participate on a regular basis in
 24 these meetings?

25 A. I certainly went to some of them but it wouldn't have

34

1 new danger of AIDS. Dr Hann concurred. A policy
 2 seemed to be emerging however to use less cryo for
 3 haemophilia A patients. It was agreed that a certain
 4 minimal amount of cryo was required and Dr Cash
 5 pointed out that TDs could produce it in emergencies."

6 I don't know whether you have any recollection
 7 of this meeting or discussions at the time, professor,
 8 but you will see there the suggestion appears to be
 9 being made, which you agree with, that cryoprecipitate
 10 is, by February '84 at least, regarded as the
 11 preferential treatment for children because of the
 12 risk of AIDS. Do you have any observations on that?

13 A. My first observation is that it's pretty typical of
 14 medical minutes which you can interpret various ways.
 15 I presume that what is meant here is that it was
 16 preferred for newly diagnosed patients with
 17 haemophilia. It wasn't the preferred method for all
 18 children. And obviously for those other groups that
 19 we've discussed it was appropriate. And later on,
 20 when heat treatment became available in, I think for
 21 us, early 1985, it was regarded, by myself anyway at
 22 least, as cryoprecipitate being less safe.

23 Q. So do we correctly understand your evidence to be that
 24 you don't agree with what's said here if it's
 25 interpreted broadly as applying to the treatment of

36

1 children generally?

2 A. I don't agree with two things. First of all, I don't

3 remember ever saying we wanted to use less cryo. And

4 secondly, I don't agree that it should be used for all

5 children, no.

6 Q. You have mentioned heat-treated products. Can you

7 recall what, if any, involvement you had in trials of

8 heat-treated products in advance of them becoming more

9 widely available at the end of 1984?

10 A. I don't recall being involved in any such trials,

11 although of course we were crying out for what we

12 called, and still do, pathogen reduction techniques.

13 It takes an epidemic/pandemic crisis for these things

14 to happen, unfortunately. We've been talking about it

15 for years. We wanted it, we needed it. But I was

16 concerned.

17 I think I contacted Dr Cash at the time that

18 before taking on any heat treatment in children, as

19 with any other pharmaceutical or blood product, that

20 I needed information from the adult sector first. For

21 two reasons: first of all, I needed to be sure that it

22 was well tolerated and it wasn't going to cause even

23 worse reactions than we occasionally saw with

24 concentrate, and; secondly, I was very concerned, as

25 was everybody, that neoantigens, in particular

37

1 purpose of it was?

2 A. Yes, I don't really recall. I can only speculate that

3 it was looking for neoantigens and particular

4 Factor VIII inhibitors as well as the other tests that

5 are indicated there, which are looking for transfusion

6 transmitted infections. But also it would almost

7 certainly have included what is called in the jargon

8 "recovery"; in other words, looking at whether the

9 levels of Factor VIII that you achieve in the patients

10 are those you would expect from the dose that's

11 written on the bottle.

12 Q. You go on to say:

13 "I do still wonder whether, in the 'virgin'

14 cases the frequency of testing will be enough to

15 document the non-A, non-B problem especially as LFTs,

16 EBV, CMV, Hep B, Hep A etc are not mentioned. In

17 addition, I wonder how useful a vague efficacy study

18 will be."

19 Can you recall what your concerns were in those

20 regards?

21 A. Yes, I suppose as far as the scientific data

22 collecting aspect of this is concerned, it was like

23 many of the haemophilia studies at the time, and

24 subsequently, based on what is just a collection of

25 anecdotes if you like, some of which I've already

39

1 inhibitors to Factor VIII, did not develop.

2 It usually is the case that such occurrences

3 occur very quickly and thus I was able, as far as

4 I remember, to be able to take on the heat treatment

5 product in children quickly. But, you know,

6 developing inhibitor is a disaster in haemophilia.

7 It's a life-long, potentially, issue. It requires

8 treatment which, at that time, was not available,

9 largely anyway, as far as curative treatment is

10 concerned, and therefore I was very sceptical, but at

11 the same time very hopeful, if that doesn't sound

12 stupid.

13 Q. We'll just look at your exchange of correspondence

14 with Dr Cash on this topic.

15 Soumik, it's PRSE0003840, please.

16 This is a letter dated 19 December 1984 from

17 you to Dr Cash. You thank him for a letter. The

18 heading is "SNBTS [heat-treated] Factor VIII". You

19 say:

20 "We'll do our best to take samples from our

21 children although I cannot guarantee their frequency

22 will be great. Certainly this will produce

23 a significant increase in workload for us."

24 Can you recall what the request had been to you

25 in relation to the taking of samples and what the

38

1 mentioned.

2 As far as the other tests there are concerned,

3 I was still obviously concerned as to whether the heat

4 treatment process would be sufficient for other

5 viruses than HIV. I was not, to the best of my

6 knowledge, and I have racked my brain about this,

7 provided with what I subsequently was involved with

8 with Bayer, which is so-called spiking studies, in

9 other words, looking at how well this actually worked

10 in practice with regard to reduction of virus, of

11 various viruses. And I think that I just had to rely

12 on word of mouth and, thankfully, subsequent

13 experience that HIV was labile in this short heat

14 treatment process.

15 I wasn't fully aware at the time, although

16 I know subsequently, that it wasn't adequate for

17 hepatitis C but -- well, what was subsequently known

18 as hepatitis C, but again, I wasn't provided with that

19 information, specific scientific information.

20 Q. You say in the second paragraph:

21 "I would just like, at this time, to express my

22 own ethical and professional doubts at the way in

23 which this major change has been instituted. The

24 impression generated to the parents is that their

25 children will now be protected from AIDS and that

40

1 prior products were dangerous."
 2 I understand, I think, professor, the first
 3 part of what you are saying there. You were not, as
 4 I understand your evidence, entirely confident that
 5 the SNBTS heat-treated Factor VIII would provide
 6 protection from AIDS, but --
 7 A. That correct.
 8 Q. -- what was your concern about parents getting the
 9 impression that prior products were dangerous?
 10 Because wasn't that right? They had been, at least
 11 for some recipients.
 12 A. Yes, I've not put it very well there. I mean,
 13 basically what I'm trying to say is that it should be
 14 put in context and that whereas SNBTS products were
 15 relatively safer than commercial concentrates as far
 16 as I was concerned, unfortunately, due to failures of
 17 Health Life questionnaires in particular that the --
 18 I don't know actually when the breakthroughs occurred
 19 in Scotland in retrospect in relation to this timing
 20 of this letter but I'd always -- I'd never used the
 21 word absolutely safe with regard to any pharmaceutical
 22 or blood product.
 23 There's a reason why the ABPI bans the use of
 24 the word "safe" full stop in all of its guarantee
 25 publications from drug companies, et cetera. There is

41

1 through proper development processes and to use it
 2 with consent, if the parents agreed.
 3 I don't recall ever giving such product but
 4 would have considered this if there were good data
 5 available with regard to efficacy, neoantigens and
 6 transmissibility.
 7 Q. You can take that down, thank you, Soumik.
 8 In terms of previously untreated patients, was
 9 there any particular protocol or policy that you
 10 introduced from 1983 onwards to address how decisions
 11 should be taken and what treatment should or should
 12 not be given to a previously untreated patient?
 13 A. Yes. Obviously this was following what I call the
 14 legacy period and at that stage I made sure that I at
 15 some stage spoke to the families of new patients.
 16 There were very few of them. I don't know how many
 17 but it would be a very small handful during the period
 18 of time I was there by chance, and because of the
 19 population that we were dealing with was of the order
 20 of 3 million and probably half a million children.
 21 Basically, I would speak to the -- and with
 22 Anna usually and Sister Murphy quite often, and
 23 sometimes the social worker if available, and explain
 24 to them about haemophilia and all the background of
 25 the severities and the treatments and the risks,

43

1 no such thing as a fully safe product, but I did
 2 believe, as you know, that there was a relatively good
 3 degree of safety, relatively speaking, with regard to
 4 the SNBTS product.
 5 Q. I just want to ask you about one further document
 6 relating to heat-treated products.
 7 Soumik, it's WITN4183002, please. Go to the
 8 next page.
 9 We can see here there's a reference, it's
 10 a letter from Dr Pettigrew to Armour, which refers to
 11 having been sent a supply of heat-treated Factor VIII,
 12 although it appears from the letter that it wasn't in
 13 fact used. We also saw with Dr Pettigrew yesterday
 14 a letter in which she and you were named on a clinical
 15 trial exemption entry in relation to Armour's
 16 heat-treated product, again in March of 1984.
 17 Do you have any recollection of why either you
 18 were approaching Armour or Armour was approaching you
 19 in relation to heat-treated trials at this stage?
 20 A. I don't have any specific memory but we were, all
 21 haemophilia directors probably, were in regular touch
 22 with the commercial companies of various sorts.
 23 I didn't have any reason to favour Armour over anyone
 24 else. Basically, we were pretty desperate at this
 25 stage to get heat-treated product that had been

42

1 et cetera, and would say that in the first instance we
 2 would be using cryoprecipitate, and give them
 3 Peter Jones' excellent book Living with Haemophilia,
 4 The Haemophilia Society leaflets that were available
 5 and put them -- and give them the contacts for The
 6 Haemophilia Society and encourage them strongly to
 7 join and, if possible, to attend their meetings and,
 8 if possible, to attend the World Federation of
 9 Haemophilia, which was almost unique at the time in
 10 allowing or encouraging the patients to attend.
 11 Q. You've emphasised in your statement the importance of
 12 training and advice for clinical staff in relation to
 13 the risks of transfusion-transmitted infections.
 14 Had there been any training programmes, as far
 15 as you're aware, prior to your arrival in 1983 at
 16 Yorkhill?
 17 A. I don't think there were many training programmes. It
 18 was sort of on-the-job training, if you like, which
 19 unfortunately happened a fair bit in that era, in many
 20 areas.
 21 One thing that's important to say probably is
 22 that because of a disaster that occurred with
 23 hepatitis B causing deaths, several deaths in
 24 a laboratory facility, a policy of -- an excellent
 25 policy, which still exists today and sometimes gets

44

(11) Pages 41 - 44

1 forgotten, was the so-called universal precautions
2 with regard to samples and how they should be treated
3 and getting rid of this business of high-risk,
4 et cetera, which I always did not like and did not
5 think it was suitable. Unfortunately, people
6 resurrected it again with Covid-19. Some people never
7 learn.

8 Basically, in addition to that there would be,
9 obviously in the adult area, there would be training
10 with regard to sexual transmission, et cetera, but
11 that was as -- and we were transferring the patients
12 once they were giving self-therapy and in secondary
13 education it did not arise. But the risk of
14 transmission of infections for those giving treatments
15 and dealing with blood spills, et cetera, was
16 emphasised throughout and Sister Murphy was extremely
17 good at doing that. I was present when she was doing
18 that on a number of occasions.

19 **Q.** Dr Pettigrew told us yesterday that she was not aware
20 of even the idea of non-A, non-B hepatitis, at least
21 in those terms, until she attended a scientific
22 meeting in 1984 at the Royal Free. I'm going to ask
23 you in a little while separately about non-A, non-B
24 hepatitis but what if any efforts were made from 1983
25 onwards to provide junior medical staff with access to

45

1 essential that that happened. There were very little
2 funding for that. We needed people to attend the
3 British Society of Haematology, the World Federation
4 of Haemophilia which, unfortunately, was in places
5 which cost a lot to get to, et cetera, like Brazil,
6 and also, for me, the seminal meeting, which was the
7 American Society of Haematology, and in that respect
8 I basically had to contact the various -- all of the
9 companies producing concentrates or anything else in
10 relation to haemophilia and ask them for funding on
11 a rotational basis.

12 Also, there were occasions where we discussed
13 haemophilia on the ward rounds and at the -- and,
14 rarely, at the hospital meetings, which were
15 unfortunately often overwhelmed with leukaemia and
16 solid tumours. I'm sure that they have better
17 training nowadays but I was just one person.

18 **MS RICHARDS:** I'm going to move on to another topic, sir,
19 and I note the time, so should we perhaps take a break
20 now?

21 **SIR BRIAN LANGSTAFF:** Yes, we take a break mid-morning.
22 Now, it may be unlikely that you want to talk to
23 anyone about the evidence you have given or are yet
24 likely to give but you mustn't. You can talk about
25 anything else you like.

47

1 journals or to ensure that they were kept up to date
2 with medical and scientific developments?

3 **A.** It's absolutely true to say that the level of training
4 that I found when I came there was not adequate and
5 the methods of training consisted largely of, as
6 I said, on-the-job training. You know, if a problem
7 occurred it was addressed and there might be further
8 presentations within the hospital, et cetera, of such
9 things.

10 What I did was probably not adequate but it
11 consisted of -- there was very, very little reading of
12 journals, something which I was just not used to, and
13 having been an avid reader myself and in that era
14 there wasn't much -- many other ways of getting
15 information. I ordered again, this was back to
16 charity again, I ordered a series of journals, about
17 ten in all, and I began marking them up with a page
18 stuck to the front of it and circulating them around
19 the department's doctors. I would take home a massive
20 pile to read at the weekend and then mark those up and
21 send them around and sometimes we would photocopy
22 seminal articles and give them to the trainee staff.

23 In addition to that, I had noticed that
24 Dr Pettigrew in particular had not been facilitated in
25 attending international/national meetings, and it was

46

1 **A.** I'll talk to the cat. He's outside.

2 **SIR BRIAN LANGSTAFF:** We'll take a break for half-an-hour.
3 So let's come back say 11.45, shall we.

4 **MS RICHARDS:** Thank you, sir.
5 (11.18 am)

(A short break)

7 (11.46 am)

8 **MS RICHARDS:** Professor Hann, I wanted to ask you a little
9 more now about non-A, non-B hepatitis. Your evidence
10 in your statement is to the effect that non-A, non-B
11 was regarded as no more than a minor illness at the
12 time you started at Yorkhill.

13 Now, it's clear from the evidence you've given
14 so far, that hepatitis B was regarded a very serious
15 condition, indeed. What was the basis for your belief
16 or understanding or assumption that non-A, non-B
17 hepatitis was minor?

18 **A.** Right, I didn't put it very well, then, to be honest,
19 with you. What had happened in the latter part of
20 1979 and 1980 was that hepatitis -- non-A, non-B
21 hepatitis had come much more into the forefront of
22 publications, et cetera, but unfortunately, and it
23 brings up a problem that I think we struggled with and
24 I, you know, believe that I failed to a certain extent
25 to communicate adequately, and that is the level of

48

1 uncertainty associated with certain problems.

2 The point about it is that we knew by this
3 stage, and I'm sure you've had evidence of this, that
4 probably your first dose of concentrate was enough to
5 cause -- to give you a dose of hepatitis. And
6 latterly we knew that was hepatitis C, from 1989
7 onwards.

8 What that did not tell you, and what led to all
9 the uncertainty, was what the prevalence of persistent
10 infection and liver damage was. Subsequently, we knew
11 that it was eradicated endogenously by the patient
12 themselves in between 25 and 40 per cent of cases.
13 And to give you an idea of the uncertainty of what
14 clinical problems would ensue, during my time at Great
15 Ormond Street between '88 and 2006, during which time
16 some of the patients would be in their late 20s and
17 being followed up jointly, just one patient required
18 treatment for hepatitis C hepatopathy.

19 We also knew at a later stage, probably in
20 1985, from the studies of Pierre Mannucci and
21 Lou Aledort in over 100 patients receiving liver
22 biopsies, that the frequency of liver diseases in
23 concentrate patients was no greater than in patients
24 treated principally with cryo. And at this time, they
25 therefore said, and this was the mantra if you like:

49

1 instance occurred around about 1968, that it fell to
2 a very low level by 1990, when hepatitis C was
3 actually found. We know, and it was my experience,
4 that very few children had symptomatic episodes of
5 hepatitis with non-A, non-B. So, you know, both
6 diagnosis, prevalence, persistence of infection were
7 very uncertain.

8 Then, you know, we were faced with the two
9 papers from Sheffield, the second of which was the
10 most worrying and turned out to be -- although it was
11 a perfectly proper publication, and I knew
12 Sir John Lilleyman very well, we worked together for
13 years in London, it turned out to be very misleading.
14 I think it was five children, two of whom were only
15 two and five years of age, who bravely received liver
16 biopsies and who were shown to have significant
17 persistent liver disease.

18 We knew subsequently, of course, that the
19 progression was 1 per cent per year and that, as
20 I said, spontaneous clearance could occur frequently
21 in non-HIV patients and that cancer was less than
22 1 per cent per year, and life expectancy subsequently
23 shown to be reduced by only between two and six years.

24 So there were a great deal of uncertainty,
25 which -- it was our job, if you like, to transmit

51

1 there's no indication to alter current therapy because
2 of concern over transfusion-transmitted infection from
3 plasma production.

4 That finding, clinically anyway, was reviewed
5 again in 2003 by Mannucci, who confirmed those
6 findings.

7 Basically, the problems we had were of
8 uncertainty. There was no diagnosis. The mantra was
9 if you found that the liver transaminases function
10 tests were more than doubled for six months, then you
11 could think that that might be non-A, non-B hepatitis.
12 But, of course, that turned out to be a completely
13 insensitive test and many patients were affected,
14 despite not having those findings. I don't actually
15 remember any patient who would have fulfilled that
16 criteria. So we couldn't say you had non-A, non-B
17 hepatitis even.

18 It was probably multifactorial, and Purcell --
19 and I was trained to a certain extent by
20 Dame Sheila Sherlock, who was the guru of hepatology
21 and viral hepatology, and basically they said: don't
22 use the term "hepatitis anything" because we don't
23 know what it is, it's probably multifactorial, it
24 could be due to a ragbag or multiple viruses.

25 We knew subsequently that the peaking of

50

1 information to patients without causing very
2 unnecessary anxiety. I don't mean that in
3 a patronising or patriarchal way. It's damaging for
4 families to be told very uncertain information and to
5 be hung the Sword of Damocles above them for many
6 years. And many years would be the case. The average
7 age in the Sheffield adult cohort was around about 40
8 or something like that.

9 So it was information that I hoped and assumed,
10 incorrectly, had been transmitted largely over the
11 years, sometimes more than a decade prior to my coming
12 there. I did not spend enough time, having made that
13 assumption, reinforcing information with the legacy
14 patients, if you like. And despite the fact that
15 product information or patient information leaflets
16 were present in the packaging from the late 1970s,
17 Haemophilia Society leaflets became available, World
18 Federation Haemophilia meetings were sponsored, and
19 patients attended, very unusually, Peter Jones' book
20 subsequently, within the next year or so, dealt with
21 it, and all the other things, like parent support
22 groups, independent support groups, and a new clinic,
23 all of these were not adequate to adequately provide
24 the information, which I expect you wanted to me to
25 talk about. And we did not -- I did not. I made

52

assumption that knowledge was better than it was, that information had been provided that had not been adequately provided. And I wasn't proactive enough in seeking information as opposed to doing what we were taught to do, which is just ask open questions.

I'm sorry, that's a very long-winded answer but a very important question, for me.

Q. Professor, thank you, and that addresses to some extent the questions I have been intending to ask you about the question of what information was and wasn't provided to patients at Yorkhill.

Can I just take you back to the question of what your understanding was in the period 1983 to 1985 in particular in relation to non-A, non-B hepatitis.

I understand what you say about uncertainty, and you've referred to various subsequent studies, and what may have been learnt from them. We have seen, for example, materials from Dr Kernoff from 1979 and 1980, I think -- certainly from 1979 -- characterising non-A, non-B hepatitis as being a serious disease with long-term consequences.

Would you disagree with or would you have disagreed with that characterisation in the early 1980s?

A. To a certain extent I would disagree because we didn't

53

about this patient with leukaemia", or whatever, "The potassium is 7 and I don't know why", and so on. Am I to go in and tell the parents that this is something that is incompatible with life? Or do I explain to them, as I tried to, that we would sort this out as fast as possible? And in that circumstance, you can sort it out as fast as possible, but in this context of non-A, non-B hepatitis, et cetera, you could not.

We basically -- let's say, haemolysed blood sample is common in children with difficult blood samples. That's just one example of many where you could put your anxiety -- dump it on a family and expect them to cope with it without full and long explanation, in a circumstance where you already know what the likely causes are and you can be, to an extent, reassuring. And where you have some appropriate therapy, which did not, of course -- was not, of course, the case with hepatitis C as it -- on non-A, non-B hepatitis in most cases.

So my answer in the same is incomplete, and I hope that explains it a bit better.

Q. So would this be a fair understanding of your evidence, and please correct me if this is not fair or not correct, in your view, in the early '80s it would

55

know -- if you'd added the words "could be" or something like that, I would entirely agree with it. What we didn't know -- and I'm not being evasive, really -- we did not know the prevalence. You know, how do you communicate that? The answer is: inadequately. In my case. And I regret that.

The fact is that -- can I give you just two very brief examples of the problems that one faces as a paediatrician? And I'm not asking anyone to feel sorry for me.

The fact is that, you know, when it came to new variant CJD, what were we supposed -- this is much later obviously -- what were we supposed to tell people? We had no diagnostic test. We didn't know who could get it. We knew, eventually, that you could transmit it. We knew that similar diseases, like Kuru could take 30 years to develop. What were we supposed to do? Tell people that, "Maybe over the next 30 to 40 years you may get a debilitating life-threatening horrific neurological disease"? The fact is that these are damaging psychological bits of information.

And just as another quick example, it would be common in those days to, say, go to the ward -- and I can just give you one instance of many, where you go to the ward, the registrar says, "I'm a bit worried

54

have been correct to say that non-A, non-B hepatitis could be a serious disease with long-term consequences?

A. Yes.

Q. It could --

A. You know, how does one then define, you know, when it becomes a serious illness and therefore you are hanging the Sword of Damocles over somebody because for sure I can tell you now I am not going to be the doctor that does liver biopsies on children with haemophilia in that era. It's a dangerous procedure. It leads to deaths.

Q. Can I leave aside for a moment the question, you are right it logically follows, as to what you might tell patients and just think about what was understood, albeit with the uncertainties you have identified, you did understand or you would have understood that it could lead to chronic hepatitis and could lead to liver disease but the prevalence of that was one of the areas of uncertainty.

Is that a correct summary? I know it's only a summary of your evidence.

A. Yes, I agree. The prevalence and the definition were uncertain. The diagnosis of it.

Q. You have referred to the Sheffield study in relation

56

1 to children. You were, I think from your earlier
 2 evidence, probably also aware of Professor Preston's
 3 Sheffield work.

4 **A.** Yes.

5 **Q.** Were you aware of what I think we've seen described in
 6 minutes of the UKHCDO's Hepatitis Working Party of the
 7 Sheffield Royal Free collaborative liver biopsy study
 8 that was ongoing I think certainly in 1980?

9 **A.** I wasn't aware of it. I know that Peter Kernoff told
 10 me I think or at least I found out somewhere, I think
 11 he told me, that they had had one death related to
 12 a liver biopsy which I wasn't aware of that study, but
 13 at least I can't remember being aware of it, sorry.

14 **Q.** If we move then from the question of what your
 15 understanding was and your awareness of uncertainties
 16 to the question of what should have been said to
 17 patients, again as I understand your --

18 **SIR BRIAN LANGSTAFF:** Just before you go there, is one way
 19 of summing it up as to your knowledge after 1978
 20 before 1983/84 that although you didn't know how
 21 prevalent it was, you knew there was a real risk that
 22 blood products might transfer hepatitis non-A, non-B?

23 **A.** Yes, we did know that.

24 **SIR BRIAN LANGSTAFF:** And you knew there was a real risk
 25 that it might be serious?

57

1 questions", and I did not spend enough time going
 2 through non-A, non-B hepatitis with people who had
 3 been around for years and attended on many occasions.
 4 That's my fault.

5 **Q.** In terms of Dr Jones' book, we can look at the texts
 6 if need be but they are what they are, they say what
 7 they say, the first book, which would have been the
 8 one available certainly in 1983, had been published in
 9 1974 and deals only with Australia antigen
 10 hepatitis B.

11 **A.** That's correct.

12 **Q.** The second edition was published some time in 1984 and
 13 certainly does make some reference to non-A, non-B
 14 hepatitis and, indeed, to AIDS.

15 Do you happen to know when in 1984 it was
 16 published?

17 **A.** I don't but it should be easy enough to find that out
 18 from the ISBN.

19 **Q.** I'm sure it will be, thank you.

20 **A.** I do remember ordering it as soon as it was available
 21 because I thought it was really good and it probably
 22 made up for some of my own inadequacies.

23 **Q.** Would you accept as a matter of principle that whilst
 24 there may be lots of other valuable resources that you
 25 can provide to patients, ultimately it's the

59

1 **A.** Yes, but, you know, I'm sorry to keep rambling on
 2 about uncertainty --

3 **SIR BRIAN LANGSTAFF:** I'm just looking for a simple way of
 4 expressing what you are saying and --

5 **A.** I have a slight caveat in that I'm not in any way
 6 criticising the Sheffield Children's study which was
 7 completely valid, but it was extremely misleading.
 8 Yes, I was aware that it could be serious, yes.

9 **MS RICHARDS:** If one then comes on to the question which
 10 you addressed a few minutes ago, of what was said to,
 11 and what should have been said to children, to
 12 families at Yorkhill, as I understand your evidence,
 13 you are acknowledging that you didn't make sufficient
 14 proactive enquiries to establish what they had been
 15 told; is that right?

16 **A.** Correct.

17 **Q.** And is this right: although information was available
 18 to patients in the form of Dr Jones' book and the
 19 various other sources of information that you referred
 20 to, there wasn't any proactive or systematic approach
 21 to ensuring that your patients received that
 22 information from the clinicians at Yorkhill?

23 **A.** Not proactively, no, other than the fact that
 24 I immediately recognised the need for a review clinic
 25 at which they were asked, "Do you have any other

58

1 obligation of the clinician to spell out to patients
 2 the risks and benefits of treatment rather than make
 3 assumptions that they might read materials elsewhere?

4 **A.** Yes, absolutely and the buck stopped with me not with
 5 Dr Pettigrew.

6 **Q.** I want to ask you then about your knowledge of AIDS
 7 and, in particular, to ask you about a symposium you
 8 attended in June 1982 because you're the first of the
 9 oral witnesses that we've had I think to make
 10 reference to that. This was something called the
 11 Second International Symposium on Infections in the
 12 Immunocompromised Host held in Stirling in June 1982.

13 What was the nature of the event and at whom
 14 was it, as far as you are concerned, predominantly
 15 aimed?

16 **A.** This was an incredibly valuable meeting which was
 17 initially started off by the European organisation for
 18 research into the treatment of cancer.

19 In that era, and it was my particular area of
 20 expertise and specialisation, deaths from the
 21 treatment as well as the disease itself but
 22 particularly the treatment of leukaemia were far too
 23 high and infections in the, as they called it, the
 24 immunocompromised host, in other words, usually cancer
 25 patients, leukaemia patients, et cetera, of all ages

60

was a very important topic and a matter of governance which I had in particular took on board for, initially for Manchester but more widely thereafter. It was my particular area of expertise.

So I attended it really for that reason and I won't easily forget it because I managed to become very ill during it with my carditis and non-A, non-B hepatitis for the second time due to coxsackievirus and I only say that because my memory of it is very clear despite the fact it was very long ago.

It was a very, very shocked meeting, indeed, and it's impossible to exaggerate that. There was one thought in particular and in those days it wasn't called AIDS or HIV or anything else. It was called GRID, which I think gives you the idea of the emphasis in those days: gay-related immunodeficiency disease. And, to cut a very long story short, amongst this extremely frightening presentation and others, there was a list of persons who were affected, and at the very bottom of that list were either two or three persons with haemophilia who -- I don't even know if it got into the final publication but I remember it vividly.

So that was my first indication that there was a problem. Of course, one didn't know what the

61

cities in the US. It is affecting homosexual men, intravenous drug users of either sex, and Haitian refugees."

Then if we go on please, Soumik, to page 22, we look at the last paragraph on this page we can see there reference to the mortality rate:

"Acquired immunodeficiency disease has high mortality rate. 13 of 42 patients in our series have already died. Nationwide, half the patients have died."

Then there's a description of what is said to be the typical course of the illness.

Then if we go on two pages please, Soumik, we can see if we look into the first main paragraph about six lines down the absence of treatment is referred to at that stage:

"Treatment of infections in these patients is hampered by the severity and apparent irreversibility of immunodeficiency", and further details are given in relation to that.

Then if we go to the next paragraph please, Soumik:

"The aetiology of this acquired immunodeficiency disease is not known", and then there's discussion about cytomegalovirus and other

63

co-morbidities were in those people but there were lots and lots of theories as to the cause of it and most people felt that it was multifactorial at the time.

Q. I'm going to invite you to look at one of the papers from it, not least because we haven't looked at it in any of the hearings so far.

Soumik, it's PRSE0002220, please.

This is the subsequent publication of materials relating to the symposium which you attended in June 1982. We can see the date there being 1983.

A. Yes.

Q. If we could turn please, Soumik, to page 18 I think it will be of what you have, we can see there in fact this is entitled:

"AIDS, acquired immunodeficiency syndrome, infection and neoplasia in homosexual men and intravenous drug addicts."

We can see the authors there and I think you referred in your evidence to the Penrose Inquiry to some of those authors.

A. Yes.

Q. It opens with:

"We're experiencing an alarming epidemic of an acquired immunodeficiency syndrome, AIDS, in certain

62

hypotheses. Then at the bottom of the page this:

"A role for an infectious agent is suggested by the fact that the disease occurs in people in whom infections are readily spread. Blood or body secretions would appear to be [if we go to the next page, top of the next page] potential vehicles of infection but since many people are exposed and only a few people develop clinical symptoms factors such as differences in host resistance and inoculum size may be important."

Then it goes on to discuss the particular position of patients with enlarged lymph glands. Then if we look at the very final paragraph on that page, Soumik, we can see there are a discussion of the devastation of the illness:

"Those who take care of these patients realise how devastating this illness is. The early events need to be identified by prospective studies of high-risk groups", and so on.

So that's the written paper. You described in your evidence to Penrose, I think, about this being a bombshell essentially in terms of the nature and severity of this new disease; is that right?

A. Yes, it was, yes.

Q. Again, you told the Penrose Inquiry, we can look at

64

1 the transcripts if you wish, but I hope these are
2 accurate summaries, that you left the conference
3 thinking that it was likely that this new disease was
4 caused by a new viral agent and that it might possibly
5 be relevant to patients with haemophilia; is that
6 fair?

7 A. Correct.

8 Q. Now, you said again in your statement and evidence to
9 the Penrose Inquiry that those who were in attendance
10 at this conference were, in particular, those who were
11 interested in leukaemia rather than those who were --
12 who were clotters, as I think you put it.

13 Were there other haematologists present, as far
14 as you can recall, who had the broader interest which
15 included the care of people with bleeding disorders
16 that you had?

17 A. No. Other haematologists, yes, but paediatric
18 haematologist are more different, as I expect you
19 would notice by now, that we had to wear several hats
20 in those eras, whereas haemophilia treaters tended to
21 be in the main or totally haemophilia treaters and
22 they would not have attended this conference. But
23 there were a large -- it was the best, by far,
24 conference of its nature in the world, and it was
25 attended by many microbiologists and infectious

65

1 press, The Lancet, the New England Journal, et cetera,
2 et cetera and -- I don't recall how many there were
3 but there were many publications. It was a very, very
4 hot topic from then onwards, and in many areas.

5 I mean, haemophilia treaters don't just read
6 publications about haemophilia. I mean, they read the
7 general haematology literature and they would be
8 expected to keep up with the general literature such
9 as the New England Journal and The Lancet.

10 Q. You referred to there having been reference to two or
11 three cases with haemophiliacs you remember from the
12 conference, and we know that it was in only the
13 following month, July 1982, that the CDC in its MMWR
14 publication drew international attention to those
15 cases.

16 A. Yes.

17 Q. Was the MMWR a publication that you had access to at
18 the time?

19 A. No, it wasn't. It's a daily reading for me now, in
20 transfusion, but it certainly wasn't widely read in
21 that era. It required -- it was like a newsletter
22 almost. It still is. But it's very widely read
23 throughout the world now. But in that era it
24 certainly was not.

25 Q. You were, at this time, in 1982, still at the

67

1 disease doctors. And there were, I think, even people
2 from the SNBTS there who gave a talk. That can be
3 checked but I'm pretty sure that's correct.

4 So it wouldn't have been something that
5 haemophilia doctors would necessarily have been aware
6 of, because of this meeting, but it was part of the
7 burgeoning knowledge that began to explode at that
8 time.

9 Q. Is it something that should have been shared with
10 haemophilia doctors? I don't mean necessarily by you,
11 Professor Hann, but you have referred more generally
12 in your statement, and indeed your evidence this
13 morning, to issues about communication, information
14 sharing, availability of information. How would the
15 news from this conference, how could it have been
16 disseminated more widely to those treating
17 haemophiliacs?

18 A. It was quite difficult because it was -- it's not
19 exactly a niche area, by any means, but it was
20 produced -- in those days, it was quite common to
21 produce a book of a meeting. Unless you bought that
22 book or disseminated that book, you wouldn't know
23 about it. But I'm sure you've found that there were
24 a whole series of publications. I would expect
25 haemophilia doctors to be aware of the general medical

66

1 Royal Free, although I don't know whether you were
2 still working with Dr Kernoff and Professor Tuddenham
3 at that stage?

4 A. No, I was there, I'm almost certain, in the early part
5 of 1980, and although it was a joined-up department,
6 I wasn't working with him or Professor Tuddenham for
7 the previous nearly two years.

8 Q. Do you recall any discussion at the Royal Free in the
9 latter half of 1982 about this new illness, of AIDS?

10 A. Oh, yes, there was. And I can't remember any specific
11 details but there were a lot of -- the Royal Free was
12 very well set up for all sorts of things, including
13 lectures and education and seminars and all the rest
14 of it, to which all of the Haematology Department
15 would attend. And I can't remember exactly when but
16 certainly during that period there would have been
17 discussion and presentations on the subject.

18 Q. You've referred to the New England Journal of
19 Medicine, and we know there was an editorial in the
20 New England Journal of Medicine in January of 1983 by
21 Jane Desforges that looked at AIDS and haemophilia.

22 A. Yes.

23 Q. Is that something you think you would have read at the
24 time?

25 A. Yes, I think so, although I don't know -- I did not

68

(17) Pages 65 - 68

1 know of her particularly as I don't think she was
2 a haemophilia doctor. But that doesn't negate the
3 findings.
4 **Q.** The Lancet. At the end of January 1983, again, there
5 was an article in The Lancet about AIDS and
6 haemophilia. Would The Lancet also have been on your
7 general reading list at the time?
8 **A.** Definitely, yes.
9 **Q.** I want to pick up what was being discussed amongst
10 haemophilia clinicians in January 1983 about AIDS by
11 reference to the minutes of a meeting that you weren't
12 at, professor, and we wouldn't have expected you to
13 have seen, but it's a useful summary, rather than
14 looking at lots of different documents, of a state of
15 knowledge.
16 **A.** Yes.
17 **Q.** It's PRSE0002647, please, Soumik.
18 It's a document I think you are aware of now.
19 It's "Notes of meeting with Immuno at London Airport -
20 24 January". It's January 1983.
21 If we go to the fourth page, please, Soumik, we
22 can see from the list of attendees that at this
23 meeting there were multiple leading Haemophilia Centre
24 Directors, not just Reference Centre Directors but
25 others as well.

69

1 If we can just go to the top of the next page,
2 we can see then there's reference to:
3 "... incubation period ... appears to be six
4 months to two years.
5 "In the UK, so far only one or two cases have
6 been reported ..."
7 And then there's a discussion about protocols
8 in the US and reference then to the New England
9 Journal of Medicine.
10 Now, I'll check with you, professor, but I have
11 assumed, is this correct, that you weren't aware of
12 this meeting at the time?
13 **A.** Can you just tell me the date again, please?
14 **Q.** Sorry, 24 January 1983. So just as you had moved to
15 Yorkhill?
16 **A.** No, I have subsequently been made aware of the meeting
17 but I knew nothing about it at the time or its
18 outcome.
19 **Q.** I have taken you to it, professor, just, as I say,
20 a convenient summary of information that was being
21 shared at least amongst a number of haemophilia
22 clinicians at the time. Given what's set out here,
23 which was, I think, not knowledge unique to those
24 attending the meeting but had been fairly widely
25 reported, would you agree with this, that certainly by

71

1 **A.** Yes.
2 **Q.** Including, in terms of Scottish presence, Dr Ludlam.
3 If we go to the previous page -- and we pick it
4 up in the last two paragraphs on that page, please,
5 Soumik.
6 Professor, this is in the context of
7 a discussion at this meeting in London, with Dr Craske
8 summarising the current position in relation to AIDS.
9 You'll see there that the minutes record or the
10 notes record it being said that:
11 "Up to 10 December ... some 800 people had been
12 reported as suffering from the AIDS, and there was
13 a 45 per cent mortality.
14 "Ten haemophiliacs in the US have been affected
15 and five have died. The youngest was aged 7. All
16 cases have had prolonged treatment with Factor VIII,
17 but there is no specific implication of one particular
18 product or batch."
19 Then it goes on to refer to three cases
20 involving blood and blood product transmission in
21 non-bleeding disorder patients, so transfusion of
22 platelets, one of which was a 20-month old child who
23 developed a possible AIDS state. That was a case that
24 had been reported in the MMWR in December of 1982,
25 professor.

70

1 the end of January 1983, by which time you have had
2 the New England Journal and The Lancet publications,
3 it should have been understood that the likeliest
4 cause of haemophiliacs being infected, although the
5 numbers were still relatively small, was the use of
6 blood products?
7 **A.** There was a slight glitch in the sound there, sorry.
8 What date by did you say?
9 **Q.** By the end of January 1983.
10 **A.** Yes, I think, again, we don't -- didn't know what the
11 prevalence was likely to be but, yes, we would have
12 been aware by this stage that it was becoming -- it
13 had become clear that haemophilia persons were
14 affected.
15 **Q.** So haemophiliacs were at risk. You didn't know
16 necessarily the extent of that risk. And at risk of
17 being infected with something which was known to have
18 a very high mortality rate?
19 **A.** That very high mortality rate is, of course, in people
20 who have other risk factors, so we didn't know what
21 the mortality rate was going to be but it was
22 frightening enough as it was, yes.
23 **Q.** I think -- again, appreciating you didn't know exactly
24 what was being said at this meeting, but we see it
25 being reported by Dr Craske that in five of the ten

72

1 haemophiliac cases reported in the States the patient
 2 had died.
 3 **A.** Yes.
 4 **Q.** I want to then take you to March 1983, to a document
 5 that you should have received at the time. It's
 6 a communication from Dr Craske.
 7 It's HCDO0000517_001, please, Soumik.
 8 So we can see this is a letter dated
 9 22 March 1983:
 10 "Dear Director ..."
 11 Our understanding is that it was sent to every
 12 haemophilia centre director.
 13 It refers to recent discussions in the
 14 Hepatitis Working Party and a meeting of Reference
 15 Centre Directors and the circulation of various
 16 enclosed papers. The aim of which was to set up
 17 a system for the reporting of possible cases of AIDS.
 18 If we look in the second paragraph, we can see
 19 the criteria for reporting are set out.
 20 And in the third paragraph, Dr Craske says:
 21 "We ... strongly urge you to collaborate in
 22 reporting cases of this syndrome ..."
 23 If we look at the next page, we can see it's
 24 from Dr Craske, Dr Rizza and Professor Bloom.
 25 I should perhaps draw attention to the top of the

73

1 I mean all directors -- is because of the recognition
 2 that it was likely that AIDS was transmissible by
 3 blood products? That was the very reason for asking
 4 directors to look out for possible cases.
 5 **A.** Well, the main reason, yes, is the answer to that but
 6 the main reason is in fact to know about the
 7 prevalence, the natural history. You know, we needed
 8 to know how to manage these patients.
 9 **Q.** The thrust of your evidence to the Penrose Inquiry was
 10 that it was really in the second half of 1983 that it
 11 hit you and other directors that AIDS was going to be
 12 a significant issue. Why do you put it as the second
 13 half of 1983 rather than early in 1983?
 14 **A.** I think there's, from my point of view, there's been
 15 a little bit of conflation of HIV infection with AIDS
 16 which I think is important to be clear about.
 17 We didn't know the natural history, as I've
 18 just said. We needed to know that in order to be able
 19 to inform people and to know how to manage, how to
 20 follow-up people or how to use prophylaxis in children
 21 and so on. So the answer is the big clue came in May
 22 of 1983 and I think you may have already heard about
 23 all that, Montagnier's description.
 24 There was a fair bit of not scepticism but lack
 25 of understanding as to whether this was really the

75

1 page, where they say:
 2 "... any developments of significance will be
 3 circulated to you before then ..."
 4 That's before the next, AGM, in October:
 5 "... as soon as information is available."
 6 Do you have any recollection of receiving this
 7 letter, Professor Hann?
 8 **A.** I don't have any specific recollection but, as I've
 9 said in my statement, I hope, that we were asked --
 10 I don't know if you are asking whether we responded to
 11 this but there were a lot of requests for information
 12 to be sent to centralised organisations and other
 13 organisations, et cetera; and all of us, Dr Pettigrew
 14 and myself and others, were very concerned about
 15 disseminating any information other than truly non --
 16 I can't think of the word -- anonymised, sorry,
 17 information. If anonymised information was requested,
 18 from a proper organisation, then we would have
 19 complied with that.
 20 **Q.** You were being asked here, as all directors were, to
 21 effectively report to Dr Craske any suspected cases
 22 of AIDS. Do you recall whether you did so?
 23 **A.** No, we didn't have any suspected cases of AIDS.
 24 **Q.** But would you agree that the reason you're being asked
 25 to do this by UKHCDO at this time -- when I say you

74

1 agent at the time and so on. So as far as the virus
 2 was concerned, my own view and that of many others was
 3 that he'd cracked it and he got the Nobel Prize and
 4 all that but it wasn't really for another year until
 5 we were absolutely sure 100 per cent that that was
 6 causing the problem.
 7 It was a transmissible disease. It was going
 8 into haemophilia persons who had been treated but we
 9 did not know -- it appeared that it was different in
 10 haemophilia. I expect you have had other people tell
 11 you all this so I'll be brief but it wasn't the same
 12 in haemophilia. We didn't have any patients who were
 13 wasting, we didn't have patients with the Kaposi's
 14 sarcoma. In fact, it was very uncommon in haemophilia
 15 because it was due -- I mean, AIDS is not caused by
 16 one virus. It was due to the HHV8 virus subsequently
 17 we knew, and so it was multifactorial. It was always
 18 thought that it was multifactorial and it turned out
 19 that it was.
 20 So, I'm sorry, a long-winded answer. We knew
 21 that it was transmissible. We knew that HIV had
 22 entered sadly the haemophilia population. We did not
 23 know yet the natural history of the disease or its
 24 truth pathogenesis and we had no therapy.
 25 **Q.** What was the point in time, doing the best that you

76

can, professor, that you thought the parents of children with haemophilia had the right to know that the treatment that they were giving their child might transmit a fatal disease?

- A. I prefer to use a different tense if possible: might have transmitted. There was little evidence subsequently. I mean, I'm not answering this very well. I wasn't aware, and I'm still not aware, as to whether any of the product that was used from 1983 onwards transmitted HIV. I think that my attitude at the time was that it was becoming more and more likely that HIV had been transmitted and that at some stage during 1983, especially after the publications and the finding of the virus, controversial though it was and continued to be, that discussions should begin at that time.

There was obviously common knowledge at this time, unfortunately reflected in the pariah status that many haemophilia families found themselves in, that HIV was a problem in the haemophilia population. It would have been unconscionable in a way that haemophilia families did not know that, certainly during the latter part of 1983 and, again, we discussed it as appropriate and passed on what information we could.

77

indeed in a Haemophilia Society Bulletin, which may or may not represent the risks in a way that a clinician thinks is accurate, it's for the clinician to explain their understanding, imperfect though it might be at a given time, to the patient?

- A. Yes, although that sounds easier than it is, but you're absolutely right. I would entirely agree with you, which is why we set up parent groups and they set up their own groups and we had a social worker. It's a process in family communication. It's not just the almighty doctor coming in and pontificating on something. It's a process over a period of time and a development of trust and an ability for people to ask you questions when you don't know exactly what they know or what they want to know, no matter how open your questions are.

So yes, we did use The Haemophilia Society. We used their leaflets, we used their meetings, we encouraged people to go to the World Federation. I'm not going to run through it all again but it's not just -- and obviously the reason I set up the clinic was so that that facility was there and we didn't just rely on *ad hoc* visits.

- Q. In the course of 1983 and 1984, how often would the clinics be clinics that you were taking and the

79

- Q. Is this right, that it's not until after May 1983 that you would have thought it incumbent upon you to explain issues relating to risks of AIDS to families?

- A. That's not quite true. I did -- if -- during 1983, I can't remember all the dates, I'm sorry, when it was in the meeting and all that. There was a welter of information, a lot of it very unhelpful, in the media. The families were extremely well aware of it and would ask questions about it.

But it's very tough sometimes to give information in the face of lots of lack of knowledge. That would be passed on as it was available and was very often in the media as soon as it was -- I mean Montagnier's findings were in the media before I knew it. It's not a question of keeping it from them or being lacking in transparency. I have nothing to -- we have nothing to hide. It was a question of how to provide adequate information. It wasn't simply giving them massive anxiety in a situation where they may well not have had it. That's the problem.

- Q. Would you accept, I think, going back to a question I think and an answer you gave a few minutes ago, that patients -- it's not for patients to try and understand risks from the basis of what might be reported in the Mail on Sunday or The Observer or

78

conversations, conversations you were having as distinct from Dr Pettigrew and Sister Murphy?

- A. We mainly did it together. There was a shortage of rooms apart from anything else. Dr Pettigrew and I -- Sister Murphy would quite often not be able to attend because she had other duties. We didn't have a dedicated nurse or a dedicated social worker or a dedicated psychologist. All of those were available and were quite good but intermittent to an extent.

To answer your question precisely, I can't but, the clinics were set up initially monthly but were frequently more often than that and I would attend them at least twice a month and sometimes on a weekly basis during the period when we were informing those families that had not had an opportunity to discuss it already in the day care centre with Dr Pettigrew.

- Q. Dr Pettigrew's evidence yesterday was that there was no policy as such about the provision of information in relation to AIDS to patients or their parents. Would you accept that?

- A. Well, there was no written policy but the policy is the policy of paediatrics and the -- it's an ethos rather than a policy, if you like. It's a question of an open door policy, first of all, first and foremost, transparency and honesty and to be as full

80

and detailed as you can be.

We discussed it on numerous occasions. I didn't write down a policy because it depended on the family and their availability. It was a very difficult decision which we did not get -- and it's my fault -- we did not get entirely right with regard to the process as opposed to the policy, if you like, as to how to contact, how best to contact people, how best to see them, how best to get through to them all of the information that we had and was essential on all sorts of things like universal precautions, et cetera. So, no there wasn't a policy but it was a question of multiple discussions between us, which we agreed between us. But it was my responsibility.

- Q. It might be said that the thrust of Dr Pettigrew's evidence was that rather than proactively contacting patients to discuss risks of AIDS with them, the approach was reactive. If questions or concerns were expressed by parents, they were then addressed and there might then be a dialogue and conversation that would ensue. Is that your recollection?
- A. It depends what you mean. Do you mean before or after we got the results?
- Q. I'm talking about the period before you got the results; so '83/84?

81

stored. This was not absolute routine. As I said to you before, my interest was in infection in the immunocompromised patient so I'd done a lot of virology follow up of such patients, and I knew that to an extent where the samples were available and where they were adequate, which they often weren't for children because they were large samples, we knew that they were there.

We knew that there was a lot of development going on with regard to testing. All virology testing -- no virology testing is perfect. There is no such thing a virology test which is absolutely specific and accurate and sensitive, so there were real problems in the initial phase of development of the serology for HIV, with regard to false positives and false negatives, and it would have been incredibly unhelpful to pass on information in the face of that.

We still have problems in Blood Transfusion Services. For instance, if you go as a blood donor today you will be asked to sign a form that says, "I consent to my blood being tested for anything you like for the next 30 years or more". It's essential that we can do that for the sake of the donors and the recipients.

So the pre-counselling testing did not happen

83

A. The answer to your question is correct.

Q. That brings me then to the question about the results and the process by which you discovered that a number of patients, former and present, at Yorkhill tested positive for HTLV-III.

We heard yesterday from Dr Pettigrew her recollection that you received a letter from Dr Follett which set out results that hadn't positively been sought as far as she was aware by the haemophilia service.

What's your recollection, please?

A. Yes. I mean, as I say, we met on a daily basis and my recollection is that I have no recollection of requesting these results. I'd just like to enlarge upon that slightly.

If I had requested it, it is almost certain that she would have known. I didn't plough my own furrow with regard to this. It was essential that we had this information. Within Blood Transfusion Services to this very day we still struggle about pre-test counselling. It of course -- I seem to be saying every five minutes that it was inadequate. Pre-test counselling was not the order of the day.

We did know that samples -- I did know, personally, I did know that samples for virology were

82

adequately. I don't recall asking for the results to be there but for reasons which I can explain it was essential that we had that and it was unconscionable to me at the time that a family would not wish to know about the health and well-being of their own children and for reasons that I can explain.

Q. You said pre-test counselling was not done adequately. Does it not follow from your evidence that there was no pre-test counselling at all because the samples were tested without any knowledge of parents?

A. That may be the case, although we had discussed with them and there was a lot of information again in the media and in the Haemophilia Society. It would be absolutely -- there was an absolute need at the very first moment, as there has been for every pandemic, for tests to tell you that somebody has it or not. The assumption which has been shown by psychologists and ethicists and others, subsequently, with hindsight we should have spent more time on that and done it better.

Q. Where was Dr --

A. I should have; I should have.

Q. Where was Dr Follett based?

A. Goodness. The virology reference lab. I'm sorry, I don't know where it was.

84

1 Q. Was that at Ruchill or -- it wasn't at Yorkhill, is
2 that right, or it was?
3 A. No, no, it was the virus reference laboratory.
4 I think it was at Ruchill.
5 Q. In terms of trying to put a date on when this process
6 was undertaken because we don't have the letter that
7 Dr Pettigrew recalls you receiving from Dr Follett and
8 then telling her about, we know that in December of
9 1984 Professor Ludlam received the information or,
10 sorry, the information about the patients infected in
11 Edinburgh from SNBTS product was made public in the
12 form of newspaper articles in December of 1984 and
13 Professor Ludlam told us about a meeting that took
14 place on 19 December 1984 in Edinburgh.
15 Dr Pettigrew's recollection is that she was off
16 on maternity leave in the first part of 1985 and
17 returned in May and that it was in May of 1985 that
18 the discussion took place with you about the results
19 from Dr Follett and then the dissemination of those
20 results. There's at least a letter from May which is
21 from Dr Pettigrew to a doctor in Inverness with
22 a particular result.
23 Are you able to assist at all with when this
24 testing process might have been undertaken?
25 A. I wish I could and I say that for a couple of reasons.

85

1 Dr Gibson reports five out of ten patients testing
2 positive for HTLV-III, which would suggest that if
3 correct that there had been some testing by the end of
4 November of 1984.
5 Do you recall whether there were -- testing was
6 undertaken in two stages or undertaken by anyone other
7 than Dr Follett?
8 A. The initial testing was done in one stage only. We
9 did not contact, I knew Professor Tedder very well,
10 but we did not do anything through UCL or anything
11 like that, or Royal Infirmary or anybody else but
12 obviously one of the issues here was is this
13 a reliable test. It's vital, crucial, for all sorts
14 of reasons, obviously, to know that it is and
15 therefore it was necessary to contact the families
16 expeditely(sic) and pass on the information that we
17 had as well as we could and to retest and to carry out
18 a further confirmatory test which, I believe, was
19 western block testing at the time.
20 As it turned out I think that it's true to say
21 that all of them were confirmed.
22 Q. The process for telling at least the current patients
23 or their families at Yorkhill as described by
24 Dr Pettigrew was to await their next attendance at the
25 centre, whether it was a spontaneous attendance, as it

87

1 First of all, I don't know whether you can get more
2 information from Professor Lowe. He may have used the
3 same source for the testing. I don't know.
4 Looking at the results, there was one test in
5 particular which was confusing because my memory,
6 which is, I'm afraid, not precise at all, was that we
7 heard about this at the end of 1984 and the beginning
8 of 1985.
9 Amongst those tests there is you probably
10 noticed a result from May of 1985. Now, I can't be
11 certain about that. You can make up hypotheses but
12 those hypotheses depend on that sample, that one
13 sample, with no previous samples on that person, being
14 a retrospectively tested sample, whereas it may not
15 have been. I could only tell that if I had a letter
16 from Dr Follett.
17 My memory of the letter from Dr Follett is that
18 there were between eight and ten Yorkhill patients at
19 the time who were infected. I'm sorry, I can't be
20 more precise than that. You could make a theory that
21 the results came in May of 1985. That doesn't -- that
22 isn't my memory but my memory is far from precise.
23 Q. It's right to note, and you refer to it in your
24 statement I think, that there is a meeting on
25 29 November 1984 attended by Dr Gibson in which

86

1 were, because something had arisen or their next
2 scheduled clinic attendance and Dr Pettigrew's
3 recollection was that that wouldn't have been more
4 than a few weeks, I think she said three to four
5 weeks, perhaps, typically.
6 What can you recall about the process and your
7 decision as to how patients should be told?
8 A. Yes, I remember it quite well because it was a very
9 difficult decision. To be honest with you, neither of
10 us knew the best way to do this. I was quite sure in
11 my own mind and -- we were both were -- about sending
12 out a letter to people, initially with any information
13 other than a clinic appointment was not appropriate.
14 They were already all very worried indeed. We hoped
15 that the majority -- and I think the majority did
16 attend because they were mainly people requiring
17 frequent visits to the local day care centre, that
18 that would be the method.
19 And the final thing that we agreed was that we
20 would try -- we would make sure that this was done
21 within a six-week period maximum and preferably
22 before. For several reasons. First of all, because
23 we needed to pass on the information, because we
24 needed to be sure that universal precautions were
25 re-emphasised, and that we gave information such that

88

the families were aware of, for instance, pneumocystis (unclear) VCI, because they might well require prophylaxis or immediate treatment.

So that was what we agreed and that's what we tried to put in order.

Q. The effect of doing it that way, as Dr Pettigrew explained yesterday, was that because it was often one parent only who bought the patient in, typically the boys' mother, the mother would be receiving the news of her son's infection with HTLV-III without the father or other family members being there.

Do you have any reflection or observation to make in relation to that?

A. Yes, it's far from ideal. On a balance, I think in retrospect it would have been better to bring them up to clinic visits over a period of a couple of weeks, through a letter saying something along the lines: we need to discuss your overall care and results. And such like. Or in some way that wasn't going to frighten -- I mean, getting a letter saying you have an appointment in two or three weeks to talk about something devastating is not something that is easy to live with, obviously. But with the benefit of hindsight, certainly, and probably I should have realised -- I should have realised. There was at

89

report, but did you have any involvement with that work?

A. No, it was instigated by, I think, Dr Chalmers subsequently. It was a very difficult thing to do because of the sometimes patchy information.

Q. Do you recall any discussion between you and Dr Pettigrew or, indeed, with parents, about whether to tell the boys themselves, the patients themselves, of their infection. And if so, how and when?

A. Yes. Now, as I'd spent at least seven years in paediatrics and training as a general paediatrician before this time, the day-to-day job of a paediatrician includes talking to children. Usually with their parents, obviously, but sometimes, the older ones in particular, they were on their own. So it's part of one's job.

Now, with regard to imparting information which could be extremely frightening, especially to very young children, even as a trained, fully trained paediatrician, this is not something one should ever take on lightly. It requires specific training, specific counselling training. And one of the things that I did at Yorkhill was to bring in a social worker who had such training, and in Great Ormond Street -- and I mean training with children. And I'm very

91

least one case subsequently where this caused unnecessary suffering.

We always had an open door policy, such that they could come back the same day, the next day, at any time, usually Monday to Friday, but then I was there every weekend as well. So we could have dealt with it in that way, such that there was not a long delay in passing on that information. But it did cause unnecessary suffering.

Q. Professor Hann, I think the answer to this may be obvious from the evidence you have already given but it is a question I have been asked to seek clarification on.

The samples that were stored in the virology lab and presumably used for testing by Dr Follett, those would have been samples stored on a named patient basis, presumably, because the information was then coming back to you to disseminate?

A. Yes, they were, yes, but obviously we have to rely on virologists not to disseminate information. Which they don't, in my experience.

Q. The issue of when the patients did or may have seroconverted was obviously looked at for the purposes of the Penrose Inquiry. I'm not going to go back over what was said at the Penrose Inquiry or in the Penrose

90

pleased, by the way, that the Inquiry is looking specifically at the needs and requirements of children during that period.

The nurses that we were able to appoint were expert counsellors. We had access to expert psychology -- child psychologists and child paediatric input. So the answer is a very simple one, really, that the opportunity there for a paediatrician to speak to a child is always there. And I certainly made clear throughout my career, I hope, that that was always available. But it's a process, again. If you take leukaemia, for instance, one of the most important people is the play therapist, because they have specific training in dealing with, say, four-year old children or three-year olds or whatever it might be. How do you impart the type of information that you need to pass on to a young child who has a life-threatening disease? And the life-threatening diseases of leukaemia could mean, for instance, in acute myeloid leukaemia at the time, 70 per cent of them died.

It requires sometimes psychology and it certainly requires expert assistance. It's not something one should ever do willy-nilly, but it is there. It's not something that -- again, I really

92

1 must emphasise, there was no question of me being the
2 senior person there. I was responsible but we worked
3 as a team and the team is there and is available, and
4 to a certain extent, like the social worker, is
5 independent of me and is available to talk to the
6 family and the children.

7 Now, final point: throughout my career,
8 I looked after hundreds of children with leukaemia.
9 There was always an opportunity to speak to children
10 and we always had one mantra, which was really, first
11 of all, whatever you tell them has to be the truth,
12 not necessarily the whole unvarnished truth, if it's
13 just frightening, but it really has to be given in
14 that way.

15 The second point I'd make is that, given that,
16 and having proactively throughout my career said that,
17 very few families actually want me, in particular --
18 as the frightening doctor or whatever -- to talk to
19 the children. Maybe that's a reflection on me or --
20 but it's actually really a reflection on the fact that
21 the others are much more experienced and skilled than
22 me. You don't take that sort of thing with anything
23 other than real seriousness. Children are perfectly
24 capable, and I've seen it, of becoming seriously
25 depressed and extremely anxious, and that can be

93

1 had done harm unintentionally, and that probably there
2 was very little different that we could have done
3 about it.

4 That -- the Inquiry may disagree with that
5 latter statement, and I fully accept that, but that
6 was my transmitted information at the time.

7 **MS RICHARDS:** Sir, I note the time, and I'm going to move
8 on to a slightly different topic after lunch.

9 **SIR BRIAN LANGSTAFF:** We will take a break in that case
10 for an hour, bringing us back at 2 o'clock.

11 So time for lunch, professor.

12 **A.** Thank you.

13 **SIR BRIAN LANGSTAFF:** 2 o'clock.

14 (1.00 pm)

(Luncheon Adjournment)

16 (2.00 pm)

17 **MS RICHARDS:** Professor Hann, if I might just go back
18 briefly to one of the issues I was asking you about
19 before lunch, which was the testing by Dr Follett.

20 As I understand your evidence -- please correct
21 me if I've got this wrong -- you don't know now
22 whether you asked Dr Follett to undertake the testing
23 or whether he did so of his own volition?

24 **A.** I don't remember. My memory, such as it is, is that
25 I didn't ask for that to be done.

95

1 a long-term issue.

2 **Q.** Did you have parents asking, on being given this
3 devastating information, how it had happened, how it
4 had happened that the treatment given by the NHS to
5 their son had infected their son with this devastating
6 disease? And if so, how did you answer as far as you
7 can recall?

8 **A.** I think I was asked this question. I think a lot of
9 people, in Scotland anyway, in my experience -- it was
10 different to England because there was a lot more use
11 of commercial concentrates -- were wanting to blame
12 pharma basically. And the fact that we had never --
13 and also the fact that the Health Service had never
14 provided enough. And, you know, we can go back to
15 self-sufficiency, if you like, but the fact was that
16 they largely blamed the commercial concentrates
17 although there was -- I can't remember the numbers but
18 there was at least one that was probably infected with
19 cryo and probably one or so that was affected by SNBTS
20 product.

21 The answer is that, and you have heard from
22 others I think, that I just had to say to them, you
23 know, we -- if we took the Hippocratic oath, we have
24 in some ways broken it. *Primum non nocere* is the
25 relevant part of the oath, first do no harm, and we

94

1 **Q.** For the reasons we have already explored, you're not
2 able to be more precise about when that process
3 occurred?

4 **A.** No, I wish I could be. My memory, again, is that it
5 was at the end of '84 or early '85, but there's no way
6 of being precise unless Professor Lowe can throw
7 further light on it.

8 **Q.** What would you have done with the letter from
9 Dr Follett, which we don't have -- currently at least.
10 Where would it have been placed?

11 **A.** Yes. Confidentiality was an extremely difficult issue
12 at this time and so it would have been in a locked
13 filing cabinet in the secretarial admin area of the
14 department.

15 **Q.** Do you know --

16 **A.** Adjacent to the laboratories, in a separate building.

17 **Q.** Do you know what happened to that letter?

18 **A.** I would have filed it in that way. I'm afraid --
19 I took -- when I left, I thought it was inappropriate
20 to take any documentation other than very personal
21 things away with me, because they would need it in
22 future. So I left everything behind.

23 **Q.** You referred in your statement, and in your evidence
24 earlier, to the importance of social work and
25 psychological support for the families of the boys.

96

(24) Pages 93 - 96

1 We know that the social worker began at the end of
2 October 1984. What, if anything, can you recall about
3 the availability of a psychologist or some form of
4 counselling?

5 **A.** There was actually a very good professor of
6 psychiatry, I can't remember his name, and
7 a psychologist. I actually contacted them very early
8 on. And also I had known a psychologist at Stirling
9 University called Dr Markova, who was particularly
10 interested in haemophilia and the way that children
11 coped with it. I asked them if they could provide
12 support if it was required by the staff on day care,
13 and I did everything I possibly could to get expert
14 social work input, not just to this area but also to
15 the children with cancer and leukaemia and so on
16 because it was a huge deficiency in my view in the
17 department at that time.

18 **Q.** Does it follow, then, that in terms of any kind of
19 counselling or psychological support, it would have
20 required a referral to an external clinician, or
21 perhaps internal to the hospital board, but out beyond
22 the haemophilia centre?

23 **A.** Yes, there are no -- the only specific resource for
24 the haemophilia centre was Dr Pettigrew. We had, as
25 I say, a good but -- again, an under-resourced

97

1 problems of families with haemophilia, including AIDS
2 and HTLV-III antibody positivity. The Society ...
3 turned down this application, the reason being that it
4 was not relevant to their first priority, i.e. AIDS
5 and HTLV-III positivity. Thus, once again, I am in
6 the position whereby I will be financing a post
7 directly concerned with haemophilia management, from
8 Leukaemia Research Funds. This post will be taken up
9 very shortly and will of course involve intensive
10 family work."

11 What was the issue here? Can you recall?

12 **A.** Can you give me the date again at the top?

13 **Q.** It's 16 October 1985, I think.

14 Soumik --

15 **SIR BRIAN LANGSTAFF:** Yes, it is.

16 **A.** I don't have a great deal of recall of this, to be
17 honest with you. I had been trying to throughout this
18 period. Professor Stone I think was the professor of
19 psychiatry. I'm not exactly sure. I think he was.
20 And I had spoken to him numerous times about the
21 problem not just in haemophilia but in the children
22 and families with leukaemia and solid tumours who
23 needed much more psychosocial support than they were
24 receiving at the time.

25 Basically, by this stage, it was obvious to me,

99

1 psychology department. So we could make referrals.
2 We did make referrals from time to time, especially in
3 the other areas, and they were available. But it
4 was -- really, the problem in that respect is that
5 what you need is ongoing support. And psychologists,
6 especially if they are very under-resourced and
7 dealing with child protection issues, eating disorders
8 and so on and so forth, and the death and bereavement
9 counselling of many of my patients, they just don't
10 have the ability to follow things up.

11 So they basically give diagnostic help if you
12 think a child is becoming depressed, or if you think
13 a parent needs help they will give -- in that era,
14 would give diagnostic support and they always were
15 available to speak with Anna, Sister Murphy and, later
16 on, the social worker if a child needed specific
17 counselling.

18 **Q.** Could we look, Soumik, at MACK0001021.

19 This is a letter from you to Dr Forbes in
20 October of '85, headed "Haemophilia Counselling/AIDS
21 and HTLV-III", and it refers to you having applied to
22 the Haemophilia Society for a grant to pay for
23 a clinical associate:

24 "The project was to investigate an
25 interventionist approach to the long-term psychosocial

98

1 having spoken to the families in the clinic and with
2 Dr Pettigrew reporting back to me, that there was
3 a need for more -- as I've just described previously,
4 more long-term involvement with the families from the
5 psychological/social work/family therapy point of
6 view. And although Anna was extremely good and so was
7 Sister Murphy in their own way in providing the
8 clinical support and social support, et cetera,
9 I believed we needed -- and I think Dr Markova at
10 Stirling had advised me too, having met a number of
11 these families and looked at various problems -- that
12 we needed long-term interventionist psychological --
13 or at least diagnostic psychological treatment with
14 follow-up and not just a usually one-off approach
15 which had been available previously.

16 **Q.** Were you able to obtain that long-term input at any
17 point before you left to go to Great Ormond Street?

18 **A.** I'm really sorry, I honestly can't remember. I hope
19 so. It sounds from what I'm saying that I was
20 intending to use private charitable funds, et cetera,
21 for a purpose that it was never really intended, which
22 unfortunately I had to do from time to time because of
23 necessity. So I expect that I had done that. I think
24 Dr Pettigrew would have known better but -- other than
25 me, but there was certainly more psychological input

100

(25) Pages 97 - 100

1 from 1985 onwards.

2 Q. You said in your evidence to the Penrose Inquiry:

3 "We fought constant battles on behalf of our

4 patients to prevent them being treated like lepers."

5 Could you expand upon that, please.

6 A. Yes, there were a lot of good people, and

7 unfortunately a number of bad things that happened,

8 some of which I've given evidence about before, but --

9 they may seem trivial but they are incredibly

10 important to the families. And I could list them

11 forever, but basically the sort of important ones were

12 the extreme difficulty in travel. They couldn't get

13 travel insurance. When they grew up, of course, they

14 couldn't get mortgages. And there was a lot of

15 effort -- actually, the Haemophilia Society I think in

16 particular, and I helped them, were able to get

17 insurances eventually. That's just one example.

18 They couldn't get through Customs because they

19 had needles, et cetera, and were identified that way.

20 Within the society in general, there were major

21 problems in some schools and other schools were

22 amazing. They were ostracised in schools. Some

23 children had to be taken out of school or change

24 school. It was extremely difficult. Anna and

25 Sister Murphy I know attended schools to try to deal

101

1 who was a public health doctor who wanted the list of

2 our patients so that he could disseminate that to all

3 dental surgeries so that they didn't get infected by

4 our patients. And to say that they were pariahs to

5 him was an understatement. I was summoned to the Home

6 and Health Department to -- sorry, that was a public

7 health doctor. I was summoned to the Home and Health

8 Department for an interview with the Deputy Chief

9 Medical Officer who said that he might have to put

10 a black mark on my copy book, and I said he was very

11 well -- he can do what he liked as far as I was

12 concerned. It wasn't, unfortunately, in the era of

13 freedom of information or I might have done something

14 about it.

15 So there were a lot of difficulties. We had to

16 be very careful about stigmatisation. Within the

17 laboratory was probably the most difficult clinical

18 problem. Initially, as with, I'm afraid to say, the

19 Covid-19 outbreak, there was great overreaction.

20 I constantly reminded them that universal precautions

21 in the laboratory, in home, all the rest of it, was

22 what came out -- the good that came out of the

23 hepatitis B tragedies. Sticking stickers all over

24 samples does nothing. It does not identify who is at

25 risk. And it was a complete waste of time with

103

1 with problems but always dealt with them in the

2 context of haemophilia in general.

3 There was a lot of -- a huge amount of adverse

4 publicity, and the publicity was often very unhelpful.

5 One thing that government seemed to have got a little

6 bit better is not putting out adverts that just

7 frighten people rigid. Even my own children came to

8 me one day and said they didn't want to "die of

9 ignorance", which was the main advert at the time.

10 Within the hospital itself, there was a couple

11 of areas that were a problem. Basically, portering

12 staff. I ended up one Easter putting children into

13 radiology myself because nobody would take them.

14 There was a hospital policy promoted, which I can't

15 remember if it ever happened, when any child with

16 haemophilia, no matter what was wrong with them, had

17 to be reverse barrier nursed, which means they got

18 their food on paper trays. I even heard one person

19 having it shoved under a door.

20 But I have to say the sister on our ward was

21 very good in that respect and put down any

22 stigmatisation.

23 One of the very good things was our dental

24 department. They were marvellous, actually. I had

25 a terrible run in with a deputy chief medical officer

102

1 Covid-19, for instance, because, as you know,

2 asymptomatic transmission occurs.

3 So yes, I'm sorry, another long-winded answer.

4 There were a lot of challenges for these families.

5 They suffered a great deal. They were stigmatised,

6 they were made into pariahs. There was good, there

7 were good responses, and then eventually everybody

8 came to their senses, but it took quite a while.

9 Q. Did you have any involvement with the transfer of

10 patients to the infectious diseases unit at Ruchill

11 for treatment once any of the boys had become

12 particularly unwell as a result of AIDS?

13 A. No. In fact, I don't think -- I certainly don't

14 remember any child becoming or developing an

15 AIDS-related syndrome. As I've explained, I was

16 expert in the area of infection in the

17 immunocompromised. I had managed a lot of children

18 with pneumocystis jirovecii, and I knew a lot about

19 prophylaxis with regard to preventing such infections.

20 If we had got to the stage where there was an

21 AIDS-related illness, then I would have had to refer

22 the patients there because there was no local --

23 really no local expertise. Thankfully at Great Ormond

24 Street the setup with infectious diseases and and

25 virology and microbiology was really excellent.

104

1 Q. Prior to your departure for Great Ormond Street, had
2 there been any advance planning for the eventuality
3 that one or more of the boys might require admission
4 to Ruchill?

5 A. No advance planning for that, because at that stage
6 the -- we had -- I think by that stage, I can't
7 remember exactly when, we had realised that Kaposi
8 sarcoma and things like lichen planus and all the rest
9 of it, wasting syndromes, were not occurring in our
10 patients, and were less common anyway, as far as
11 I knew, than in the other populations that have been
12 described to that point.

13 So basically the planning consisted around
14 advice about universal precautions yet again. The
15 advice with regard to the identification of
16 pneumocystis, which would involve persistent cough,
17 et cetera, discussions with experts, in London
18 usually, of when to start prophylaxis with
19 co-trimoxazole, which had been shown to be very
20 effective in leukaemia patients. We had a lot of
21 leukaemia patients on that prophylaxis.

22 I can't remember whether or not we started
23 those patients on it. It would have depended, to an
24 extent, on their CD4 counts, which were done for us at
25 the Royal Infirmary, I believe.

105

1 hepatology is very centralised in the UK, and it's the
2 one area where there is no major department at Great
3 Ormond Street but there is a hepatologist within the
4 gastro department there, so -- who I happen to know
5 very well. So within Yorkhill we would have had to
6 contact hepatologists in other hospitals and I would
7 have taken advice from Gordon Lowe as to who to
8 contact and he will have been able to give me a lot of
9 evidence in that respect.

10 Q. In relation to the period after the introduction of
11 the SNBTS heat-treated product in December 1984, for
12 I think about two and a half years until April of
13 1987, the heat-treated concentrate you would have been
14 using for the care of patients with haemophilia A
15 would have been NY, I understand.

16 A. I'm sorry, I can't remember that.

17 Q. In any event --

18 A. The heat-treated was -- was it 68 for 24 hours?
19 That's all I can remember.

20 Q. Whatever the precise name of the product, is this
21 correct: it was believed, and we've seen your exchange
22 with Dr Cash, to be sufficient in relation to the
23 eradication of HTLV-III but it was understood that it
24 did not have the same effect in relation to non-A,
25 non-B hepatitis; was that your understanding?

107

1 Q. In the period 1983 to 1987, was there any input from
2 or advice sought from hepatology experts in relation
3 to your patients?

4 A. I knew the hepatologist at Great Ormond Street very
5 well, Dr Peter Clayton, and I knew the infectious
6 disease doctors there very well indeed, and some of
7 them were my colleagues for years previously, and
8 I had many discussions with them about whether there
9 was anything else we should be doing, whether there
10 were any tests we should be doing.

11 They asked me about doing liver biopsies and
12 I -- I remember a number of conversations over whether
13 it was worth thinking about doing any more enhanced
14 scanning rather than liver biopsies but at that stage
15 there was no real evidence. I don't know what
16 happened subsequently. There was no real evidence
17 that that helped much.

18 Basically, the advice was keep doing the liver
19 function tests, seeing if they developed any other
20 symptoms of hepatology.

21 Q. What about at Yorkhill? Was there any ability to
22 access hepatology?

23 A. That was at Yorkhill.

24 Q. That was while you were at Yorkhill.

25 A. When I went to Great Ormond Street there was --

106

1 A. It didn't have the same level of activity. I'm sorry,
2 I can't remember what the -- whether that heat
3 treatment had any effect at all on hepatitis C. We
4 did know that it wasn't effective enough because there
5 were, I believe, subsequent -- I don't know in my
6 children's population but in other populations there
7 had been seroconversions for hepatitis C in that era.

8 Q. Did you introduce any particular system or take any
9 particular precautions during that period to ensure
10 that previously untreated or minimally treated
11 patients would not receive that concentrate and thus
12 be exposed to non-A, non-B hepatitis unless absolutely
13 necessary?

14 A. We continued with the previous policy, as far as
15 I remember, which was to use cryoprecipitate in new
16 patients. As I've said, in that era it was
17 a relatively small department with relatively few new
18 PUPs, if you like.

19 There's no question in the mild or moderates.
20 There are very rare moderates who do bleed more, a lot
21 more, but, as far as severes, go it would be very few
22 new patients and they were very young, and I think
23 Dr Pettigrew may have told you that in any case they
24 were usually treated with cryoprecipitate initially
25 because home therapy in very young children -- (video

108

(27) Pages 105 - 108

1 frozen)

2 Q. I think we lost you there for a moment, professor.

3 The picture is occasionally breaking up. Would you be

4 able to repeat that last answer you gave. You said

5 home therapy in very young children ...?

6 A. Oh sorry. In very young children, in any case,

7 cryoprecipitate was usually the standard of care in

8 that era unless there was a severe episode like a bad

9 nasty head injury or whatever. But as you probably

10 know, in the first couple of years of life such

11 episodes are uncommon anyway. Many of them don't even

12 present for the first year or so of life. But if it

13 was required to maintain definite haemostasis and for

14 that to be continued over a period of time, then

15 cryoprecipitate would not have been a good solution

16 for several reasons, not least because even during

17 this period we were still having some difficulties in

18 getting factor assays done in the laboratory because

19 of fears over cross-infection.

20 Q. Can you recall what efforts were made to address the

21 possibility of infection with HIV for haemophilia B

22 patients during the period up until I think

23 October 1985 when a heat treated Factor IX product

24 became available from SNTBS?

25 A. Gosh, this is stretching my memory. We had very few

109

1 the first half of the 1980s at Great Ormond Street?

2 A. Well, I was very -- yes, during that time. Basically,

3 when I was a lecturer, I was there, you have the dates

4 and I've forgotten them again, it was prior to 1979,

5 so it was about 1977, the patients that I saw were

6 almost all on concentrate and a very high proportion

7 of that was commercial. I think a lot of it was

8 Armour. That's just a memory but certainly there

9 were -- there were no patients that I met during that

10 period of time that were on home therapy with

11 cryoprecipitate.

12 Again, there was no written protocol at that

13 time when I was a lecturer. Sorry, are you talking

14 about 1988 now?

15 Q. I am but I was asking what you knew of what happened

16 before and by all means fill in that gap by reference

17 to your own direct knowledge from working there too.

18 A. I was there for two years so I can remember a fair bit

19 of it.

20 Cryoprecipitate, there was no written protocol.

21 There was an understanding that patients with mild

22 haemophilia and von Willebrand's disease would be

23 treated with cryoprecipitate. There was a very small

24 amount of use of DDAVP. We used quite a lot of

25 antifibrinolytic agents, tranexamic acid, EDHCA,

111

1 patients by chance with Christmas disease,

2 haemophilia B. I honestly cannot remember. It may be

3 one or two. In those patients the only alternative is

4 fresh frozen plasma which is even more difficult than

5 using cryoprecipitate because the amount of Factor IX

6 that you get in that is minuscule compared to the

7 concentrate.

8 So basically again the idea -- and it also

9 doesn't respond to either cryo or DDAVP or whatever --

10 so basically if there had been, and I don't remember

11 any episodes to be honest, where it also tends to

12 be -- there is a tendency for it to be a milder

13 clinical manifestation as well -- not always but it

14 quite often is. My memory, such as it is, is that we

15 rarely needed to treat patients with Christmas disease

16 and that when we did, we would have tried to avoid the

17 use of concentrate during this period of time where

18 possible and even consider the use of fresh frozen

19 plasma, although it was a very poor treatment.

20 Q. I want to move next to some questions about Great

21 Ormond Street. When you arrived, the concentrates

22 that would have been available would have been I think

23 entirely heat-treated.

24 What was your understanding or what did you

25 learn about what the approach to treatment had been in

110

1 et cetera. For patients with Christmas disease, they

2 were treated, as far as I remember, exclusively with

3 fresh frozen plasma and the patients with severe

4 haemophilia were, by that stage, the vast majority of

5 them, even though they had only been there for a year

6 or so, were transitioning to home therapy and

7 eventually the idea, as in Glasgow, was that they

8 would transition to adult care once they were

9 self-treating and established in secondary school at

10 about the age of 12 or 13.

11 Q. When you returned to Great Ormond Street as

12 a consultant following your four or so years at

13 Yorkhill, what, if anything, did you understand or

14 learn to be the position about the circumstances in

15 which Great Ormond Street patients had been infected?

16 A. Well, it had been managed by Professor Hardisty and

17 one of the lecturers, Dr Ball, mainly in collaboration

18 with the infectious disease department and one of the

19 lecturers there who was given that as a specific role.

20 There were quite a large cohort of patients,

21 I don't know the number I'm afraid, who were infected

22 with HIV, some of whom -- a few of whom had developed

23 problems, one of whom I remember had developed

24 autoimmune thrombocytopenia with a low platelet count,

25 but there weren't a great number of patients, very few

112

(28) Pages 109 - 112

in fact, who were developing overt signs of an AIDS-related type syndrome.

Where that happened the studies had already been undertaken and were in progress with AZT, which was led by the infectious disease department and the professor of immunology, Professor Levinsky.

Q. As and when patients of Great Ormond Street did develop AIDS and opportunistic infections, how was their care and treatment managed? Were there joint clinics or was it a question of a referral to the infectious diseases unit?

A. I didn't really run joint clinics because yet again I was pretty much on my own. What we did was they would be seen in an infectious disease clinic and then I would see them in a clinic, either the haemophilia clinic or in the haemophilia centre, which was very limited initially but at least it existed slightly.

The management of these patients was essentially by the infectious disease and immunology team with the hepatology input but also we relied a very great deal on to our clinical nurse specialists with specific children's counselling training in haemophilia and infectious diseases and the infectious disease lecturer who -- all of whom, if you like, co-ordinated as a team.

113

to every patient who was about to be tested whether or not they turned out to be positive.

Q. What, if any, role did you have in the treatment of patients with bleeding disorders who had been infected with hepatitis C as and when treatments became available in the '90s, interferon, interferon and ribavirin and so on?

A. As far as I remember, as I've said, I think there was only one patient between '88 and 2006 who required interferon therapy. It was extremely poorly tolerated. It was not -- I didn't -- I always believed that specialisation and expertise was important and I certainly didn't dabble in infectious disease management or HIV management or hepatitis C management other than looking after their haemophilia and ensuring that the co-ordination between the multidisciplinary approach worked, which was also particularly the role of the nurses involved who worked together.

Q. At what age typically did the bleeding disorder patients at Great Ormond Street cease to be the responsibility of Great Ormond Street and be referred to an adult service?

A. It depended on what was wrong with them. If they were not infected, they were usually transferred and again

115

They also had a lot of input from psychology and social work and it was a very well resourced area.

Q. When the test for hepatitis C became available, what can you recall about the process for testing patients for hepatitis C at Great Ormond Street, the bleeding disorder patients?

A. Thankfully it was a great deal better. Pre-test counselling was intensive and expert from the -- I think there was eventually even a hepatitis C clinical nurse specialist but initially it may well have been from -- yes in fact there was, from the infectious disease team and, to a certain extent, ourselves because this was across the board. There were -- being a tertiary quaternary referral hospital there was a lot of patients who received a lot of blood products for cardiac disease, for immuno-deficiencies, for all sorts of other things that were not related to haemophilia, and of course all the leukaemia patients were at very significant risk.

So it was a very big undertaking. It again required retesting and gold standard, as it was called, testing but it was -- by this stage, I suppose we'd learnt our lesson and pre-test counselling and post test counselling and ongoing support was provided

114

adolescent management in the UK has never been brilliant. It's a great deal better now. We've worked very hard and we then my successor, Dr Liesner, my colleague and successor, managed to set up a transitional care consultant between ourselves and the Royal Free and some of the patients south of the river went to St Thomas'. So the answer to your question is that we would expect them to be on self-therapy and established in secondary school. That establishment was managed from, as an outreach, from the department.

Now, if they were infected with hepatitis C or HIV or both and had no problems whatsoever and were not requiring any treatment, and I don't know if there were any of those, they would also transfer to those centres with the transitional care put in place.

Those who -- those patients who sadly were running into major problems actually stayed between ourselves and UCL which there was an -- a lot of us had joint contracts with UCL. The infectious disease people, the immunologists, some of them did, and they managed the patient between ourselves and UCL.

We weren't allowed to admit patients over the age of 15 to Great Ormond Street except in exceptional circumstances, so it was essential that there was some

116

sort of joint management between those two centres, because they had a great deal -- you know, that's where Dr Tedder worked and, you know, there was a great deal of expertise there, in HIV and hepatitis C, and they basically managed the patients.

As I say, it would have been foolish for me to interfere with that but we made sure their haemophilia was also managed and they weren't stigmatised in any way.

Q. Professor Hann, I have some more general questions for you now, not specific to Yorkhill or Great Ormond Street but to be answered as you're best able to.

Did you consider that the management of children with bleeding disorders gave rise to different ethical considerations than the treatment of adults and, if so, in what respects?

A. Yes, absolutely. I suppose I would say that, wouldn't I? I'm a paediatrician. Children are not small adults. They've different disorders, diseases, they have different responses to things. They have much, much different educational needs. They have different psychological needs. They need expertise.

This was a question that arose and I won't ramble on, but this is a question that arose repeatedly within this particular area which was

117

of that. So I do think that children should be managed within centres where there is a lot of hands-on paediatric experience, not just the great almighty doctor but the whole team and what we used to call the seamless roving in Great Ormond Street, in other words, everything around it that's required for dealing with children with long-term disease.

That finally by the way doesn't mean that we had to do everything. We have, for instance, a hub and spoke approach towards leukaemia treatment, et cetera, and we empower centres like Watford, or Welling, or the Whittington or whatever to manage, co-manage those patients with us. That's more difficult to arrange with haemophilia because it's far less common -- it's less common and much more chronic. But anyway sorry that's a long answer.

Q. Are there, in your view, any different ethical considerations that might arise as between the position of children and adults when it comes to treatment that might be regarded as experimental or particularly high risk?

A. Yes, there are, and I've already explained to you that -- the involvement of people like play therapists and all the rest of it, explaining -- it's a question of explanation, appropriate explanation, an

119

almost unique in medicine in that many children were looked at after within adult centres with adult physicians looking after them, maybe having some advice from paediatrics.

In Glasgow that was not the case and latterly although only quite a lot latterly that was -- it was the case in London that a lot of children were looked after in major adult centres by adult-treating physicians.

It would virtually be the story of my life if you like if I were to say what is different about paediatrics. Does it matter that you are paediatrically trained? Yes, it does. Does it matter that you are in a centre that has multiple paediatric specialists and sub-specialists? I believe so, which is one of the reasons why I moved. Does it matter that you have input from people who are trained in both counselling and communication and all the rest? That's not just psychologists, the nurses in particular and the social workers with family therapy counselling training are a vital element here too.

So they also obviously do have some different diseases. They have different ways they present. Children with pneumocystis do present somewhat differently. For instance, I had a lot of experience

118

explanation that doesn't just frighten but informs appropriately and honestly and transparently.

The ethical considerations are -- I've read the ethical report, which is very good. The problem with ethics when you're on the ground is it's often very difficult to decide what is ethical and what is not. The legal aspect of it really isn't the major issue, although it was clarified with Gillett principles and so on. I was very unhappy prior to that that children were assumed not to be able to give consent to anything.

There are episodes, and I give you the example of -- I know it's not the same, but children with bone tumours, for instance, where amputation is an issue, and the child may be 10 or 11, or whatever it may be, these are difficult -- and may refuse therapy. Do you override that or do you regard them as being competent or do you -- what do you do?

We set up a forum. We had obviously an ethics -- not department, but we had a paediatrician who had trained with Sir Ian Kennedy, who you may know, and who gave us advice. And we also had an ethical forum, for instance, for children who had multiple congenital abnormalities, and of course that's been in the press in the near past (*unclear*).

120

(30) Pages 117 - 120

These are very, very difficult issues sometimes, where parents expect treatment that doctors believe to be futile, where children refuse treatment and the parents want it, where -- you know, all of these things come up, and are not theories, they are actual practical problems.

I was very lucky at Great Ormond Street, we had usually very good advice, and we're surrounded by people who had the best needs of the children in view.

Q. In your witness statement you made an observation that blood transfusion centres in England seemed to function like individual fiefdoms. What was the basis for that view and are you able to elaborate upon what you meant?

A. Yes. There is no doubt that's how it worked, in my view anyway, when I was training, and that would be in the mid-1970s.

It was set up, like a lot of things in the NHS, piecemeal post-war, based on people who had been in the army and places that had been set up to provide blood and such like, not necessarily in the right place and not necessarily with all the best people involved, not necessarily, or, you know, all the appropriate expertise.

I don't know when this changed in the UK. It

121

"Training of all clinical staff with regard to blood and blood products and [transfusion transmitted infection] is still not satisfactory ..."

And you say:

"For some reason this area is still not taken seriously enough and mistakes such as wrong and inappropriate transfusions continue."

Could you elaborate upon that, please.

A. Yes. It's obviously improved and we're, within transfusion, doing everything we possibly can to ensure that -- for instance, within Ireland we now insist that all trainee staff when they come in have carried out the E-learning facility and been accredited on it before they come.

We still have to put a great deal of effort in by our -- one of the great things that came out of this tragedy is that haemovigilance and governance of blood products improved out of all proportion with the appointment in every hospital of haemovigilance staff, who report directly to the hospital transfusion committee and the executive team.

So it's unfortunately the case that within medical education in the UK I can tell you, whatever those educators say, when they come to the hospitals their attention to detail and their knowledge is often

123

certainly had changed by the time I got back to Great Ormond Street. You know NHS BT is a world-class institution, with fantastic scientific backup, which we rely on a great deal in Ireland, by the way, even after Brexit, and they work as a whole team across the country now.

For instance, you know, they have centralised things like frozen storage of rare blood groups in Liverpool, and they have groups of scientists and technicians and laboratory scientists who advise them on things like blood products, radiation and particularly, the foremost fear still, transfusion-transmitted infection, which is a day-to-day issue still within blood transfusion.

So in those days it was down to the local director. It was run by a doctor who was sort of all-seeing and all-pervasive and who made the decisions and who seemed to run the budget and everything else. So it was pretty much a fiefdom.

There were major problems in the late 1970s because of activity and it came to be carried out in the courts subsequently, and I think that was one of the drivers to put it right.

Q. You identified also in your witness statement your concern that:

122

initially not sufficient. And I am not talking about haematologists here, because that's rammed into them, but in general there are still some doctors out there who regard a bag of blood as something that sticks your haemoglobin up by a gram or so, if you're an adult, and that's about it, despite the fact that we've spent forever producing leaflets for patients and getting consent organised, et cetera, for every transfusion.

Q. In your evidence to the Penrose Inquiry you described this:

"There was inappropriate use of blood products on a regular basis, particularly by surgeons, who often attributed near magical properties to products such as fresh frozen plasma and cryoprecipitate and whole blood."

Were you talking about a particular time period then, or is that something that you've been aware of throughout your career?

A. There is still -- it's improved a great deal. There was a lot of belief. It was a bit like phlogiston or -- anyway, it was a pseudoscience-type belief in things like whole blood: it gave you everything you needed bar the kitchen sink, it stopped you bleeding, it plugged up holes, it stopped surgical bleeding, it

124

might even have treated infection or whatever.

As I say, the education in those days was wholly inadequate. It has improved a lot but there are still -- there is still inappropriate use from time to time, which is monitored through the Blood Transfusion Service attending hospital transfusion committees through IRs, as they are called, incident reports, which every hospital in Ireland anyway has to produce.

We look at things like why are people still using cryoprecipitate when it is no longer the safest drug for surgical bleeding following cardiac surgery, for instance. Why are they still doing it? And the evidence that exists -- and unfortunately, one thing I will finally say is that I grew up throughout the 1970s and onwards with the management of children with leukaemia. It's been a great success story and it's based on proper data, proper clinical trials, proper outcome, proper governance and overseeing of those results. Blood transfusion did not work like that, has not worked like that, and the number of clinical trials, randomised trials, carried out in this area is still far too small. This has been recognised by the Cochrane reviews, et cetera. I recently looked at two things: like screening for CMV negativity in blood

125

treating inhibitors. It's absolutely massive. And it's a massive cost as well, of the order of something like half a million per year's treatment.

So you could say well neither of these things were established. Well, in actual fact, the evidence from the 1970s in Sweden were fairly compelling, and we were able to confirm -- or Dr Liesner was able to confirm that, even in patients who had very bad target joints.

The evidence with regard to inhibitors came from Germany, which has always done much better than us in this area, where they were treating -- I think they were called Bonn Protocols and so on. They were treating patients with very high dose so-called immuno-tolerising treatments well before we were able to fund that or get enough treatment in the UK.

Things have changed radically. But actually being at a full level of self-sufficiency, we were a very long way off that. Scotland was much closer and probably could have taken on prophylaxis for the majority of children eventually, but obviously the finding and verification of recombinant products solved the problem. If you could afford it.

Q. You also refer in your statement to two concerns: one, the lack of a national expert advisory body or group

127

products, since the 1960s and '70s there have been ten trials only; irradiation of blood products for patients who are having bone marrow transplant, zero trials. It's still a bit of a Cinderella area of medicine.

Q. You have referred in the course of your evidence today on a couple of occasions to the issue of self-sufficiency and wondered whether we would go back to it, and this is my invitation to you, Professor Hann, to go back to the issue. You deal with it in your statement and talk about the fight for self-sufficiency. What would you wish to say on that issue?

A. I won't keep you too long on that because this may well be irrelevant.

Self-sufficiency means that you can treat every patient optimally. That would mean being able to treat everybody with prophylaxis, which is a huge extra drain on resources, and also as big a problem, being able to treat the inhibitor patients with massive doses of Factor VIII. There was no way that the UK was in a position -- or appeared to have been unable to be in a position to get to that level. I can't remember the doses that you would require for prophylaxis per year but it's greatly increased for

126

of some kind during the 70s or 80s and, secondly, the lack of national guidance.

Again, can I invite you to elaborate upon how, in practical terms, that could have assisted?

A. I'm very grateful to you for asking me that, genuinely, because it was -- you know, if nothing else good should come out of a tragedy like this -- and I've already mentioned some of the good things: the governance of blood products, the traceability, which is a legal requirement in Ireland now. But there are some things that have not happened. I was going to say this in a concluding statement but in a few minutes I would like to address it now because I think it's very, very -- I think it's fundamentally important actually.

This was an era where we were coming -- I believe coming out of a very patronising era in medicine. There were still some doctors around who believed that they were some sort of god or whatever, but not within my haemophilia community. What we needed was not a bunch of doctors meeting together with a bit of advice from somebody who had some interest in some area related to what we were dealing with. What we needed -- and this was not solved with hepatitis C entirely and certainly it was not even

128

(32) Pages 125 - 128

1 answered when we came to prion disease, and I said
2 that in my statement. What we needed was -- and I'm
3 afraid to say -- it has to be either governmental or
4 at least it has to be in a position to give you
5 something in authority which you know you can follow,
6 with knowing that it is correct and it is coming from
7 the right sources, et cetera.

8 Basically, I would describe the situation that
9 we were in was in some sort of maelstrom, in
10 a whirlwind of different advice based on very little
11 science, coming at you from all different corners, and
12 consensus very difficult to achieve in certain areas,
13 also including non-A, non-B hepatitis. It was very
14 difficult but it would have been a great deal better
15 if there had been central guidance, if we had had some
16 sort of SAGE committee or whatever at that time. I'm
17 sure that's much better now. I sincerely hope it.

18 But it's taken this pandemic for this to
19 improve and I'd just like to say two other things
20 really because I think it really is of fundamental
21 importance and I will be quiet after that.

22 One of the major problems we had at that time
23 was with public health input. Some people will hate
24 me saying this but the fact is that it was either not
25 much help or it was actually unhelpful. What we

129

1 are going to start taking viral infections and
2 transmitted infections seriously immediately or very
3 soon has been a very, very disappointing process.
4 Most virologists now accept that we are going to
5 invariably suffer such plagues and we need to be
6 better prepared. This is an existential threat to
7 humanity, possibly even as serious as that of climate
8 change.

9 We've already in the Blood Transfusion Services
10 had to deal in the Americas with Zika virus causing
11 major neonatal problems, with West Nile virus, for
12 which we have to test in Ireland at the moment, and
13 many other problems such as, for instance,
14 hepatitis E, which is very common in Ireland and the
15 UK at the moment and is associated with a degree of
16 uncertainty.

17 Worse than that, there are other viruses coming
18 through which get very little publicity. For
19 instance, Nipah virus has already killed at least
20 300 people in Malaysia. It comes from bats, through
21 pigs. I don't think anybody else ever again is going
22 to really look at porcine products for human use.
23 Hendra virus has killed a number of people in
24 Australia and comes from fruit bats, which really
25 takes me on to the final point that I wanted to say as

131

1 needed from public health was experts who had real
2 experience of dealing with public health issues and
3 not just preventative health ideas, which obviously is
4 a very important part of public health, but actually
5 real training and real experience of dealing with
6 epidemics, pandemics, endemics, whatever you like to
7 call them, real experience. My experience
8 subsequently is that this has improved but it's still
9 not adequate.

10 You know, you only have to look at Ireland,
11 where I work now. Public health doctors are not even
12 recognised as consultants and are not paid as such.
13 It's a disgrace. It's been put forward and brought
14 forward so many times. You know, if you ignore
15 history, you are undoubtedly doomed to repeat it.
16 I think that training in those areas still has to be
17 addressed, it has to be addressed with proper hands-on
18 training. There are people, Dr Markova and various
19 others who are very experienced, one of the leaders in
20 the WHO is a Dr Ryan, an Irish man.

21 So the expertise does exist but it does not
22 exist across the board to a level which would have
23 helped us at the time or subsequently.

24 The other thing that I really wanted to say was
25 that to come out of this and to believe that people

130

1 a conclusion which is that, you know, this is an area
2 that should be foremost in research funding in
3 Government priorities and in all aspects of medical
4 training.

5 Also, that research needs to be between the
6 veterinary and the medical fraternities. There's very
7 little -- there is some but there's very little
8 collaboration at this moment in time. That must be
9 improved. Experts in zoonosis need to be part of the
10 advice that you get during these epidemics along with
11 behavioural scientists, psychologists and all the
12 other things that we didn't have at the time.

13 We still haven't learned all of that. And
14 until we do, we are going to have further problems,
15 which are going to be a major threat. And just one
16 final thing, if people don't think research is
17 impossible, just think for a moment: how is it -- if
18 the bats are the carriers and live with these viruses
19 within them and have methods of control of these
20 viruses within them, that should be a very, very
21 important research protocol within any country at this
22 moment in time.

23 So, I'm sorry, I just wanted to take the
24 opportunity to say that there were -- this was
25 a terrible tragedy, nothing worse in my experience of

132

over a third of a century of treating children, but we had hoped that good would come out of it. A lot of good did come out but there are still major things that we have not learnt and I hope that this Inquiry will bring to the forefront.

Thank you very much for allowing me to say that.

MS RICHARDS: Professor Hann, sir, I have got some specific questions that have been suggested to me by recognised legal representatives of Core Participants but we need, obviously, to give the opportunity to them to suggest any further questions. I don't anticipate there will be a huge number more but, bearing in mind the need to give that opportunity and the fact that the picture is breaking up somewhat from time to time, I wonder whether we could take the break now and then when we come back I can finish the questioning of Professor Hann by reference to the further suggestions I might receive from Core Participants.

SIR BRIAN LANGSTAFF: Yes, indeed. 3.30. Take a break until 3.30, professor.

A. Thank you.

(3.00 pm)

(A short break)

133

arrived? Was it the Health Board, Dr Willoughby, the Scottish Home and Health Department, or a combination?

A. Difficult to say. All I know is that when I came there, there was a lot of -- there were a lot of people who were trying to help me improve things, including people in the Health Board and all of the areas that you mentioned.

I think Dr Willoughby was possibly even worse at politics than me. He -- I can only pass on things that other people -- hearsay from other people really, to be honest with you, in that they said that he didn't fight hard for things and such like. I really, honestly, don't know, but it's important to understand two things.

First of all, this was -- paediatric haematology and looking after children with leukaemia and blood disorders, bleeding disorders, was a relatively new thing. There were a lot of very poorly resourced departments, including Great Ormond Street at the time. There was half a haemophilia nurse when I went there and a store cupboard converted into a bleeding room and an area you could barely get in through the door where you treated patients.

When we started doing external audits, my first visit was to Belfast, to the unit there, some years

135

(3.32 pm)

MS RICHARDS: Professor Hann, a number of further questions suggested by core participants that I'm going to ask you about.

In terms of the facilities at Yorkhill on your arrival, what were the available laboratory facilities and where was the testing on factor levels and ALT levels undertaken?

A. Basically there was a -- right next to my office there was a main laboratory, and then next to it there was a blood transfusion area. That was it.

The clotting initially -- coagulation testing -- was done in the main laboratory, and then I was able to send, with support, I think mainly from charity again, a lady to Canada, because Dr Gibson had worked in McMaster and was able to get additional training for that person, and she came back and ran the clotting lab thereafter.

Q. So in terms of testing for ALT levels, was that undertaken which you have described in Yorkhill or was that sent off elsewhere?

A. No, that was just down the corridor, in biochemistry. Dr Logan I think it was.

Q. Who would you say was responsible for the lack of facilities and staff which you observed when you

134

later, in around about 1990, probably, to Dr Elizabeth Mayne, and there was effectively no haemophilia centre there. It was a matter of using beds on the ward or maybe areas in clinic, et cetera. It was a common problem. As I say, although things were designated as centres, they weren't resourced as centres. There were exceptions to that, and the best exception by a long -- actually Royal Manchester Children's and Alder Hey did not have any designated centre area either, when I've been there very recently. The best example of a well-resourced centre, and one of the very few at the time, was the Royal Free, the Katharine Dormandy Centre, which I think was started in a caravan, but with the rebuilding of the hospital in Hampstead, as some of you may know, it was all-singing and all-dancing.

Sorry, as far as staff were concerned, yes, it was -- I think that there was -- I've already said there was a lack of sub-specialisation in paediatrics in Scotland at the time. It was not given a high priority really by anyone until Dr Willoughby left and I came, and his leaving was part of the drive towards this. There were a whole series of appointments in paediatrics and areas of general paediatrics and neonatology and so on, yet I couldn't get a paediatric

136

1 oncologist on board. I did manage to get Dr Gibson
2 there, which was a godsend, and she was extremely
3 good. But getting other things, like facilities,
4 I had to raise the money myself.

5 **Q.** You described communication issues as the biggest
6 problem on your arrival. How did those problems
7 manifest themselves?

8 **A.** Let me put it this way, all the things I was used
9 to -- of all the things I was used to, very little
10 existed. I was used to social workers with family
11 therapy training, I was used to clinical nurse
12 specialists who often had counselling training, I was
13 used to the availability of psychologists to
14 a somewhat limited degree. And I had, as a trainee,
15 significantly more time available and personnel
16 available to carry out communications. But in
17 addition to that, I noticed that a number of families
18 were not part of The Haemophilia Society and didn't
19 seem to know it existed and I had to push that very
20 hard.

21 I was very used, at the Royal Free, to
22 a routine clinic. In fact, there were clinics every
23 day there virtually. So that was something that
24 needed to be sorted out immediately. Then at Great
25 Ormond Street in particular, through the palliative

137

1 et cetera, and you know how dare they step on our toes
2 as nurses and doctors and so on. We are there and we
3 understand how to talk to people and how to
4 communicate and all that, not realising that there is
5 an absolute need, especially in this sort of area and
6 especially when there's a lot of grievance and grief
7 and so on, for somebody independent with proper skills
8 to be available to them, so I'm sorry I'm being very
9 verbose but it was something that I had to fight for
10 very hard.

11 Fighting for resources is one thing and
12 I wasn't all that good at that. Fighting for a new
13 ethos is even more difficult, but with the appointment
14 of a very good social worker for the leukaemia solid
15 tumours, et cetera, and the involvement of Ms Leitch,
16 it improved dramatically. I think her input as what
17 I would call a patient advocate is, especially in
18 times of crisis, is so important.

19 **Q.** How did parents react to the changes you implemented
20 in terms of the switch to SNBTS concentrate and the
21 cessation of prophylaxis?

22 **A.** There was -- I mean, I have to be honest with you in
23 that this was dealt with almost entirely by Anna
24 Pettigrew and Sister Murphy, and they fed back to me
25 and I did talk to them in the clinic about it and so

139

1 care and home care teams, I was used to the
2 communication -- the excellent communication skills of
3 proper paediatric trained nurses and nurse counsellors
4 through parents' groups, which were either *ad hoc* on
5 the ward or whatever, but very often, for instance,
6 bereavement counselling sessions and information
7 sessions. Like, for instance, when there was a new
8 leukaemia trial, et cetera, there would be open
9 sessions, town hall-type sessions.

10 Also, on top of all that, there was an absolute
11 need, which had not been recognised at the time, for
12 independent patient advocacy, if you like. Something
13 that came later on at Great Ormond Street that was
14 actually just inside the main door of the hospital,
15 probably still there, was the patient advocacy team
16 which I fought for with many other people and which
17 reported directly to the Chief Executive and to which
18 people could drop in and was entirely confidential and
19 also the extremely important role of social workers.

20 I will just add one thing, and this is not
21 intended to be pejorative but the attitude towards
22 social work at the time needed a bit of a revolution
23 in Yorkhill and the attitude basically was these
24 people were there to sort out a bit of extra money to
25 buy fridges and freezers, a bit of extra clothing,

138

1 on.

2 There was a little bit of a reaction because
3 you know the marketing of the product is obviously as
4 you would expect better with the company, nice packs
5 and bits and pieces and swabs and butterflies and all
6 the rest of it. I have to say their product information,
7 or PILs as we call them nowadays, leaflets within the
8 packs which actually dealt from the mid to late 1970s
9 quite well with the risk of hepatitis being there.
10 All of those things were preferable. It was of higher
11 purity and they knew that.

12 But basically I just said to them that I can't
13 prove it to you but, you know, it's almost common
14 sense that the approach of, in most respects anyway,
15 of the SNBTS was -- and the blood Transfusion Service
16 throughout the UK was preferable.

17 **Q.** One of the aspects of your policy changes was to try
18 and keep concentrate use to a minimum. How did you
19 control concentrate use amongst those who were on home
20 treatment?

21 **A.** I didn't actually really control it that much. The
22 only thing that I did or two things really was that
23 I reduced -- it was very important to me and to the
24 country at the time that we preserved the supply as
25 much as possible so that we didn't have to go back to

140

the use of commercial concentrate. So I did -- I had two reasons to stop prophylaxis. First of all, it wasn't working in the way it was being given to those patients who were on it and, secondly, with patients who were on home therapy and so on it was a routine anyway to be sure that it was being used in not a profligate fashion. That very, very rarely happened anyway.

So we didn't say to people you can't do this anymore. What we said to them was, "Prophylaxis isn't working. We do need to maintain the supply. I would advise you that we should cease prophylaxis until we know more about how it should work", or whatever, and I don't recall any major push back to that, although one or two people were a bit fed up with having to spend longer, it's just a few minutes longer, drawing up the product which was of lower purity from the SNBTS.

Q. Were you aware from your work in the field of leukaemia of the work in the very early 1980s of the Gallo group on HTLV-I and II?

A. I had actually met Bob Gallo at various meetings and so on. I knew his main interest was, to my knowledge, in bone marrow transplant and so on. But I did -- I may have been aware of it. It wasn't something

141

protocols of that nature. It would have been along the lines of we need to do this because the patient might be considered for pneumocystis prophylaxis, for instance.

Q. Was any research undertaken on your bleeding disorder patients during your time at Yorkhill?

A. Yes. I've already mentioned Dr Markova in Stirling who had had a long -- prior to my being there, I think, had had an interest, and I encouraged that interest because we needed more psychological, psychotherapeutic sometimes, input. Her interest was mainly in coping procedures and -- in children with haemophilia, things like, you know, what could they do with regard to sports, were they scared to death of knives and and so on and so forth, how do they manage scratches and how -- how are they adapting to their life with haemophilia. And that was done, as far as I'm aware, with the full consent of those taking part. I mean, she was a psychologist (unclear) and she was a very good psychologist, she published quite a bit, which some haemophilia families read of course. And I'm sure she explained it in a consenting way.

Q. Was there any other research in which the patients were involved, to your knowledge?

A. I can't think of anything else, no.

143

that -- HTLV which did you say?

Q. I and II.

A. HTLV is still a problem to this day as a T-lymphotropic virus. I didn't actually know that he was particularly interested in it but I was certainly aware of HTLV as an issue in leukaemia patients and it's really a problem arising, my memory is, out of the West Indian population and so on.

Q. In the period when you were at Yorkhill before you learnt of the HIV infections in your patients, were your patients tested for immune function deficiency? Were CD4:CD8 counts undertaken prior to their diagnosis?

A. I don't think so. I was very much aware of one issue which I regarded as a somewhat ethical issue, which is that it was -- I don't think it was suggested in Scotland, but it was certainly suggested at some of the meetings that I was that one could surrogately test for HIV by doing CD4 counts. I did not approve of that approach.

If there was anyone who had, and there were not to my knowledge, if there were anyone who had shown any signs of AIDS-related illnesses of any description we would certainly have done it then. I don't think we did, no. I certainly didn't have any research

142

Q. Just going back to the issue of the letter from Dr Follett and the process of testing for HTLV-III, do you have any recollection as to whether that letter contained only the results of patients who were still Yorkhill patients or did it also include patients who by that time had moved to the Royal Infirmary in Glasgow?

A. This really was why I pointed to Dr Lowe may be able to help more. As far as I recall, and I think I read some of Dr Pettigrew's statement, that it was the same, that there were about eight or ten names on that list. I'm as sure as I can be but I'm not absolutely certain that there are no transfer patients' names on that list. The fact that they were done at the same time may give you a clue, with Dr Lowe, as to when those tests were actually performed.

Q. Did Dr Gibson have any involvement, as far as you can recall, with the process of testing?

A. I very much doubt it. I don't think so.

Q. You referred I think in one of your answers earlier to the possibility of a patient having been infected with HIV from cryoprecipitate. Are you talking there about a Yorkhill patient or elsewhere?

A. I'm sorry, I don't have the list in front of me. Within my statement I just reiterated what Dr Chalmers

144

1 did. It's in black and white. I never did what
 2 I know Sir Brian was describing and what we still call
 3 a look-back. I never did that. But my memory is that
 4 there was a patient who developed HIV from
 5 cryoprecipitate.
 6 **Q.** But you have taken that simply from the work recorded
 7 in the Penrose report; is that right?
 8 **A.** Correct. From that table, you know, the one you --
 9 **Q.** Yes.
 10 **A.** It's actually -- and there's a sort of diatribe that
 11 goes with it as well, yes, which describes where it
 12 was possible to try to elucidate whether it was SNBTS
 13 or commercial or cryoprecipitate as stated, and I put
 14 it in my statement.
 15 **Q.** What, if any, psychological or other support was
 16 provided specifically to the parents of the children
 17 infected at Yorkhill?
 18 **A.** Well, we've already stated the difficulty that there
 19 was with mothers being involved initially, but we
 20 always encouraged them, if possible, to involve the
 21 other parent or partner. When it came to the parents'
 22 support groups, everyone was invited. There was never
 23 any question of identifying people who were positive
 24 or not positive. It was generic, initially, and then
 25 I believe that the social worker and the parents

145

1 there sometimes are. So -- and we still worry about
 2 that side of things in blood transfusion. How long do
 3 you keep Health Life questionnaires? 10, 20, 30?
 4 Simple laws don't really help you in those
 5 circumstances always.
 6 **Q.** In the period from the end of 1984 through to
 7 April 1987, so the period when the SNBTS product
 8 protected in relation to HIV but not in relation to
 9 non-A, non-B hepatitis, were you aware of there being,
 10 in Scotland, any supply of 8Y, which was the BPL the
 11 Elstree-produced product?
 12 **A.** I know it quite well because I obviously used it and
 13 did so afterwards. I don't recall ever using 8Y in
 14 Scotland. It was a very good product in many
 15 respects, had a very low inhibitor risk apparently,
 16 but I don't recall using it in Scotland.
 17 **Q.** Final question, Professor Hann. You referred in your
 18 evidence, I think this morning, to UKHCDO as
 19 a doctors-only organisation. Who else do you think
 20 could or should have been involved to broaden it out?
 21 **A.** Yes, well, I was a bit of a lone voice with this.
 22 I probably might well still be. I believe very
 23 strongly that most of our haemophilia care should be
 24 nurse-led. It's always, from the mid-1970s, been
 25 a home care type of approach, a day care type of

147

1 themselves held parents' groups themselves.
 2 We certainly, and Dr Pettigrew -- I spoke to
 3 one group and I know Dr Pettigrew at least spoke to
 4 one group, if not more. It's possible that the
 5 invitations didn't go out to everyone, and that's
 6 regrettable, but I think that we made every effort,
 7 and the social worker and others certainly made every
 8 effort to get everyone there that could be, available.
 9 **Q.** Dr Pettigrew's evidence in relation to patient records
 10 was that records were retained at Yorkhill when
 11 a patient was transferred to the Royal Infirmary in
 12 Glasgow. Is that your recollection and if so what was
 13 the purpose of that?
 14 **A.** I'm not sure that there was a specific purpose.
 15 Basically it was the case, yes. We occasionally
 16 loaned out case notes, but sometimes, for all sorts of
 17 reasons, you get contacted at a later stage about
 18 somebody asking for information about a patient,
 19 obviously in a confidential manner. So we -- my
 20 attitude was I sort of ignored the 25-year rules and
 21 and so on and I always said, both in Yorkhill and at
 22 Great Ormond Street, that we should retain the records
 23 of these patients forever. That wasn't always
 24 followed, of course, but -- and that causes problems
 25 when there are things many years down the line, as

146

1 approach, co-ordination of such patients, doctors are
 2 very bad at that on the whole. The nurses have nurse
 3 counselling expertise or should have and I really
 4 thought that at the very least it should be broadened
 5 out to include them.
 6 I don't think there's any specific reason why
 7 that view only have a doctors' only -- well,
 8 originally it was only reference doctors. It then
 9 became broadened out to more doctors. Certainly the
 10 annual general meeting could have been for nurses and
 11 I would just reiterate that there was one thing which
 12 was remarkable, which was that the World Federation of
 13 haematology was one of the very first meetings ever
 14 where everyone, including the patients, was invited,
 15 and they took a very active part in it and, by the
 16 way, were supported by the commercial pharma companies
 17 to do so.
 18 So, yes, you could say everybody and maybe
 19 there should even be a national UKHCDO which includes
 20 patients but, as far as the planning goes, it would
 21 certainly at least be important to include nursing and
 22 you could also consider including physiotherapists and
 23 social workers up to a point. I mean, sometimes when
 24 you're dealing with very technical issues you have, as
 25 the World Federation does, you have break-that type of

148

1 approaches which are intended to be more of interest
2 as opposed to keeping people out. So, yes, sorry,
3 long answer again.

4 **MS RICHARDS:** Professor Hann those are my questions and
5 I understand that your counsel, Mr Bowie, doesn't have
6 any questions for you.

7 Sir, over to you.

8 **Questioned by SIR BRIAN LANGSTAFF**

9 **SIR BRIAN LANGSTAFF:** Yes. When you were answering
10 questions this morning, you were talking about
11 heat treatment and you said "we" -- I think talking
12 about haemophilia doctors generally -- "we were crying
13 out for pathogen reduction techniques, talking about
14 it for years. We wanted it. We needed it".

15 Can you tell me a little bit more about the
16 years during which you were calling out for pathogen
17 reduction techniques and what you had in mind
18 particularly.

19 **A.** You may be very surprised to know that that's exactly
20 what we're discussing at this very moment -- not
21 today, tomorrow probably. Pathogen reduction
22 techniques for -- transfusion transmitted infections
23 are still a major problem. They are going to continue
24 to be a major problem and they are very unlikely to go
25 away and Zika virus -- it usually takes a crisis for

149

1 From 1980 onwards, certainly at the Royal Free,
2 I remember speaking to Dr Kernoff and him saying we
3 need some sort of -- is it going to be some detergent,
4 heat treatment? What is it going to be? Ultraviolet
5 light? There were lots of discussions at the time but
6 there seemed to be no imperative until the crisis and
7 we had wanted it for years.

8 We had wanted self-sufficiency and we had
9 wanted pathogen reduction techniques, and we had
10 wanted pathogen reduction techniques that did not
11 compromise the supply and did not cause inhibitors.
12 That was part of the problem because all pathogen
13 reduction techniques do affect a little, thankfully,
14 although initially we thought it was much more, do
15 affect the supply and the supply was crucial and
16 I certainly didn't want to go back to using commercial
17 concentrates again.

18 I hope that answers it to an extent.

19 **SIR BRIAN LANGSTAFF:** To an extent, yes, you have
20 described I think a clamour, certainly from 1980
21 onwards, but the implication of years and going back
22 to the arguments about self-sufficiency might suggest
23 it was earlier still.

24 **A.** Oh, yes, it was. Well, because we did know about --
25 as you know, you've been through it in great detail,

151

1 something to improve, and that's what happened with
2 HIV. It happen again with Zika virus such that the
3 Americas, USA particularly, introduced pathogen
4 reduction techniques for cellular products which are
5 much more difficult to deal with than plasma products.

6 So Ireland, for instance, and the UK are
7 looking again and we hope to introduce very soon
8 pathogen reduction techniques for platelets and then
9 for red cells because transmitted infections still
10 occur. As I've said, we had hepatitis a few years ago
11 and we are still at risk of malaria, which can be
12 fatal, and other organisms, bacterial organisms such
13 as Serratia, staph aureus, et cetera, which can also
14 be fatal.

15 So the answer to your question is that in the
16 years prior to 1983/84 we knew that hepatitis B was
17 a problem and that it wasn't going away. It still
18 hasn't gone away and we needed something that was
19 safer with that. We did not foresee, I don't think
20 anybody did really, to be honest, HIV coming down the
21 line. It was out of a clear blue sky, as far as I'm
22 concerned anyway.

23 As soon as that arrived, it just kick-started
24 things at long last. Prior to that we had been
25 discussing hep B and then non-A, non-B hepatitis.

150

1 that non-A, non-B hepatitis was known about. The peak
2 incidence was around about 1968, in fact. You didn't
3 see it much in children because for some reason they
4 very rarely have acute episodes but it had been known
5 about the adults for a long time and we didn't know
6 whether it was going to be a very minor thing,
7 although that was often the consensus, or whether
8 after 1980 it was going to be a prevalent serious
9 thing or a rare serious thing. But whatever, we
10 needed -- there were a lot of people, including in the
11 haemophilia fraternity, who said, you know, "We need
12 to be careful about the next thing that comes down the
13 line". I don't know that they were expecting anything
14 like HIV, but they were certainly thinking about it.
15 There's no doubt about that.

16 So there was a clamour, yes. But we
17 couldn't -- we couldn't even get to self-sufficiency,
18 let alone reducing further the amount that we had.
19 Sorry.

20 **SIR BRIAN LANGSTAFF:** So is it the case that, more or
21 less, for as long as you had been practising in
22 medicine, in training first and then later on
23 practising, there had been some discussion about
24 pathogen reduction techniques?

25 **A.** Oh, yes, absolutely, including -- well, because at

152

1 least in part because of the hepatitis B problem.
 2 **SIR BRIAN LANGSTAFF:** But your sense was until 1980 anyway
 3 little imperative to get on with it?
 4 **A.** I think people like Dr Kernoff and so on were very
 5 keen for it to happen. I remember him saying to me,
 6 you know, the first dose of this concentrate's going
 7 to give people non-A, non-B hepatitis. It was really
 8 a question of whether this was going to be like
 9 hepatitis E or G or D or A where it was something that
 10 was just eradicated in everyone or nearly everyone or
 11 it was going to be thankfully not 100 per cent but
 12 60 per cent already whatever it was who developed
 13 chronic problems.
 14 It was always regarded, in the people that
 15 I spoke to, was always regarded as important.
 16 **SIR BRIAN LANGSTAFF:** Thank you. You told us that your
 17 view in May 1983, this is I think by reference to what
 18 Montagnier had been saying in the Pasteur Institute,
 19 that it was more and more likely -- that was the
 20 expression you used -- that HIV, you said, I think LAV
 21 is what he called it, had been transmitted and you
 22 corrected the tense, but the "more and more likely",
 23 does that mean you thought it probable or it was just
 24 a possibility which was becoming a greater possible or
 25 what?

153

1 difficult because we didn't have a test that was
 2 reliable up until we got the results. So what
 3 I should have done better was to contact virology to
 4 say: have you got samples? Will you test them? Will
 5 you let me know? I understand you're testing various
 6 things for Tedder and people to see if it's specific
 7 and sensitive and so on.
 8 Then go back to the families and say, "Right,
 9 we are going to test this sample as soon as we know,
 10 and Dr Tedder is going to let me know when that is
 11 likely to be". And then that opens up a whole series
 12 of questions which were not adequately dealt with at
 13 the time, which are, you know: what if it's positive?
 14 What if -- you know, if it's negative, is that fine?
 15 Is it negative forever? Can you be infected even now?
 16 You know, all those sort of questions would have been
 17 much better dealt with with pre-test counselling, and
 18 I greatly regret that I didn't spend more time -- or
 19 at least realised that there was a gap at the time.
 20 **SIR BRIAN LANGSTAFF:** What do you think the effects of not
 21 doing it in that optimal way may have been?
 22 **A.** Well, I think it would be probably have come as less
 23 of a shock to the families because they would have
 24 been better informed about the potential outcomes.
 25 I've said throughout, and it really is a difficult

155

1 **A.** It was a probability but again I am sorry to keep
 2 harking back to prevalence and so on, we didn't know
 3 what proportion. It ended up something like 16 -- it
 4 was less in Scotland than in England. It was
 5 16 per cent or was it 20 per cent or something. But
 6 the fact is that yes, it was very likely by that stage
 7 in my estimation that it was a transfusion-transmitted
 8 infection. We did not know in haemophilia as yet how
 9 serious this was going to be and how -- what
 10 proportion would develop AIDS and how long that would
 11 take or whatever, or whether it was going to be
 12 eradicable in some people, like hepatitis C is. That
 13 turned out to be a false hope unfortunately.
 14 **SIR BRIAN LANGSTAFF:** The next question is in relation to
 15 something you were quite self-critical about and that
 16 is where you told us that you should have done it,
 17 that is pre-test counselling, better.
 18 In what way would you have done pre-test
 19 counselling better, albeit looking at it in
 20 retrospect?
 21 **A.** Really, I can deal with it well in retrospect,
 22 I think, because it was in the forefront of my mind
 23 when hepatitis C came along in '89/'90: how do we do
 24 this and how do I not repeat history and not learn
 25 from it? Basically, what we should have -- it was

154

1 situation, telling people about potential terrible
 2 news when actually it might well not be relevant.
 3 It's not an easy thing to do, to deal with uncertainty
 4 which goes from one pole to another: life-changing to
 5 just carry on. It would, I believe, have -- there
 6 were no complaints at the time and I'm amazed.
 7 I suppose they were just so dependent upon us that
 8 they would not complain. And that's a matter of even
 9 greater regret. But the fact is that, you know, they
 10 would have been better informed, they would have been
 11 stimulated, if you like, to ask more questions and to
 12 be better informed. Although there were lots of other
 13 means of information, I think it would have been
 14 a much better situation, and it's not something that
 15 I would have -- I'd feel in any way comfortable about
 16 ethically retrospectively. Despite the fact that
 17 I can't remember ever asking for this to be done, it
 18 was needed.
 19 **SIR BRIAN LANGSTAFF:** Finally, you have a perspective
 20 which few of the witnesses to this Inquiry have in two
 21 respects. One is having been so involved during your
 22 working life in the Blood Transfusion Service as well
 23 as in paediatric haematology and the care of children
 24 with haemophilia, but also having done it in Ireland
 25 as well as in this country.

156

1 A. Yes.

2 **SIR BRIAN LANGSTAFF:** By Ireland, I mean southern or the

3 Republic of Ireland.

4 A. Yes, since 1940s.

5 **SIR BRIAN LANGSTAFF:** Yes.

6 A. Still a member of the European Union.

7 **SIR BRIAN LANGSTAFF:** Yes, well, my grandfather was an

8 Irishman, so I know parts of it quite well.

9 Are there any lessons that we can learn here

10 from your experiences, what your experiences tell you,

11 about the way in which Irish Republic has dealt with

12 matters or is dealing with matters?

13 A. You may not like the answer to this. I think that the

14 fact that the Lindsay Tribunal was held at a time when

15 people's memories were better and where data

16 collection and -- it was fresh in many people's minds.

17 I mean, it's still, to a certain extent, fresh, but

18 it's -- a lot of what I say to you, and I have to be

19 perfectly honest, is relearned memory. And I really

20 hate that, because what I want to tell you, and I mean

21 this, is my actual memory at the time, rather than

22 reading through hundreds and hundreds of pages that

23 I get sent.

24 The fact is that the Lindsay Tribunal was

25 extremely well carried out. You don't want to learn

157

1 have to be -- sorry, I'm rambling slightly, but in the

2 Ognall Inquiry, that I dealt with, one of the biggest

3 problems was things like records from Great Ormond

4 Street, where are they? Who had what? How can you do

5 a look-back when you don't know what people were

6 seeing, et cetera?

7 So of that came the product liability or what

8 I call product liability, Consumer Protection Act,

9 et cetera, within Ireland now. The similar thing

10 happened because of Lindsay and so on. And we now

11 have an absolute requirement for everyone who uses

12 blood products to have complete traceability, which

13 has to be verified and annotated.

14 Sorry, the final thing, really, is that they

15 went from having one haemophilia doctor to having

16 a whole cohort now and a proper built centre and

17 excellent governance. It's revolutionised haemophilia

18 care here. I think it is -- there's no doubt that you

19 will find, I'm sure, it difficult to make judgments of

20 things that happened a very long time ago. They were

21 in a better position in that respect and it's possible

22 that the record-keeping itself was better here than

23 there.

24 But from the Irish point of view, haemophilia

25 care now is extremely well run. The governance over

159

1 anything from it from the legal profession point of

2 view, because of course now it has become virtually

3 impossible, through massive cost and through the

4 Supreme Court judgments here, that you can't really

5 name and shame people anywhere near as it may be

6 necessary in inquiries here. But a lot of good came

7 out of the Lindsay Tribunal, the most important of

8 which were the resources and the governance and

9 quality control.

10 I mean, you might say -- I'm still working in

11 blood transfusion -- that blood transfusion has become

12 extremely risk-averse, to a level that at times makes

13 me worry about efficacy and so on and so forth. In

14 fact, the blood supply in Ireland now, because of

15 things that are good that have come out of the

16 previous inquiries, and I hope this Inquiry too, is

17 that the blood supply now is often on a tightrope.

18 And we've just been through an extremely taxing

19 period, for myself and others, where the supply has

20 been extremely compromised.

21 The Health Life questionnaires now mean that

22 we -- which are applied very, very rigorously and

23 looked at externally and legally, you know, it's --

24 100 per cent traceability is a legal requirement in

25 Ireland now. I'm not sure that it is in England. You

158

1 it is very, very tight indeed, and the management of

2 such patients is, as far as I'm concerned, optimal and

3 a lot of that came because of that inquiry. A lot of

4 good came of it.

5 **SIR BRIAN LANGSTAFF:** Those are all the questions that

6 I have to ask.

7 **MS RICHARDS:** Professor Hann, is there anything further

8 that you wanted to add?

9 A. Well, I went to say two things really. First of all,

10 and I will be very brief, I want to thank you and

11 Sir Brian for letting me ramble on in a very verbose

12 way sometimes because I have two pages of things I was

13 going to say here and I have already, I think, said

14 them all.

15 I do think it's very important that the Inquiry

16 takes on board the special requirements for children

17 and paediatric care and paediatric haemophilia care

18 and all those aspects that I've talked about, and

19 I too hope that good comes of this for reasons I've

20 already stated. It's an ongoing problem and an

21 existential problem.

22 The final thing I want to say is you have

23 already heard a lot of people say that the worst thing

24 you can do, if you are in your right mind as a doctor,

25 is to do harm to people. Unfortunately, harm does

160

occur. A tragedy such as this is not absolutely unique but it was unique in my experience and it was a terrible thing and it caused terrible suffering to the families, and I just want to apologise again for the additional harm that I caused through not communicating well enough. Thank you.

MS RICHARDS: Thank you, professor.

SIR BRIAN LANGSTAFF: Professor, you have given us a very different perspective in many ways from the perspectives we've been listening to because yours is the perspective of somebody who is a paediatric haemophilia doctor in part, if I can call you that.

You've not held back at all in what you have had to say and your views, and it seemed to me that you have given us a very graphic picture of what it was like to start in 1983 with a huge range of responsibilities and very little resource and a system which needed to be changed as you saw it.

You have I think shown that your approach was to do it, not as being the King who is a doctor or a consultant but as part of the skilled team working together, which you described right at the end of your evidence as the ethos which you wanted to instil and it struck me that you have been restless throughout your career as you've told us and, indeed, in your

evidence restless for improvement. So I'd like to thank you in particular for all that and I'd ask you for your part to forgive me and us for having taken up your day and prevented you from getting out to enjoy what may be a rare Irish experience, that of sunshine as you told us this morning.

A. Thank you. I am very grateful for the opportunity.

MS RICHARDS: Sir, we resume tomorrow at 2.00 with the commencement of the evidence of Professor Lowe.

SIR BRIAN LANGSTAFF: So 2 o'clock tomorrow afternoon.
(4.19 pm)

(Adjourned until 2.00 pm the following day)

161

162

INDEX

PROFESSOR IAN MALCOLM HANN, sworn	1
Questioned by MS RICHARDS	1
Questioned by SIR BRIAN LANGSTAFF	149

163

(41) Pages 161 - 163

<p>MS RICHARDS: [13] 1/18 47/18 48/4 48/8 58/9 95/7 95/17 133/8 134/2 149/4 160/7 161/7 162/8</p> <p>SIR BRIAN LANGSTAFF: [24] 1/3 47/21 48/2 57/18 57/24 58/3 95/9 95/13 99/15 133/21 149/9 151/19 152/20 153/2 153/16 154/14 155/20 156/19 157/2 157/5 157/7 160/5 161/8 162/10</p> <p>'</p> <p>'70s [1] 126/1 '80s [1] 55/25 '83 [1] 81/25 '83/84 [1] 81/25 '84 [5] 32/20 33/10 33/10 36/10 96/5 '85 [3] 32/20 96/5 98/20 '88 [2] 49/15 115/9 '89 [1] 154/23 '89/'90 [1] 154/23 '90 [1] 154/23 '90s [1] 115/6 'virgin' [1] 39/13</p> <p>0</p> <p>001 [1] 73/7</p> <p>1</p> <p>1 per cent [3] 26/14 51/19 51/22 1.00 pm [1] 95/14 10 [3] 18/24 120/15 147/3 10 December [1] 70/11 10.00 [1] 1/2 100 patients [1] 49/21 100 per cent [3] 76/5 153/11 158/24 11 [1] 120/15 11.18 [1] 48/5 11.45 [1] 48/3 11.46 [1] 48/7 12 [1] 112/10 12 hours [1] 29/23 12 months [2] 3/22 5/5 13 [2] 63/8 112/10 15 [1] 116/24 150 [1] 1/8 16 [1] 154/3 16 October 1985 [1] 99/13</p>	<p>16 per cent [1] 154/5 18 [1] 62/13 19 [3] 45/6 103/19 104/1 19 December 1984 [2] 38/16 85/14 1940s [1] 157/4 1960s [1] 126/1 1964 [1] 28/17 1966 [1] 28/16 1968 [2] 51/1 152/2 1970s [8] 4/9 52/16 121/17 122/20 125/16 127/6 140/8 147/24 1971 [1] 14/22 1972 [1] 1/23 1974 [1] 59/9 1976 [2] 28/13 29/14 1977 [1] 111/5 1978 [2] 2/17 57/19 1979 [4] 48/20 53/18 53/19 111/4 1980 [10] 2/17 2/18 48/20 53/19 57/8 68/5 151/1 151/20 152/8 153/2 1980s [5] 16/2 23/22 53/24 111/1 141/20 1981 [1] 3/2 1982 [8] 2/18 60/8 60/12 62/11 67/13 67/25 68/9 70/24 1983 [37] 3/11 5/11 13/11 16/6 18/3 18/20 25/17 27/9 31/22 43/10 44/15 45/24 53/13 59/8 62/11 68/20 69/4 69/10 69/20 71/14 72/1 72/9 73/4 73/9 75/10 75/13 75/13 75/22 77/9 77/13 77/23 78/1 78/4 79/24 106/1 153/17 161/16 1983/1984 [1] 11/9 1983/84 [2] 57/20 150/16 1984 [19] 8/7 11/9 34/16 37/9 38/16 42/16 45/22 59/12 59/15 79/24 85/9 85/12 85/14 86/7 86/25 87/4 97/2 107/11 147/6 1985 [13] 16/6 18/21 36/21 49/20 53/13 85/16 85/17 86/8 86/10 86/21 99/13 101/1 109/23 1987 [5] 4/11 4/15 106/1 107/13 147/7 1988 [2] 9/25 111/14</p>	<p>1989 [1] 49/6 1990 [2] 51/2 136/1</p> <p>2</p> <p>2 February 1984 [1] 34/16 2 o'clock [3] 95/10 95/13 162/10 2.00 [1] 162/8 2.00 pm [2] 95/16 162/12 20 [2] 12/19 147/3 20 months [1] 3/15 20 per cent [2] 18/25 154/5 200 [1] 1/8 2000 [1] 4/23 2003 [1] 50/5 2005 [2] 4/15 4/16 2006 [3] 5/2 49/15 115/9 2009 [1] 5/3 2010 [1] 5/2 2020 [1] 1/1 20s [1] 49/16 22 [1] 63/4 22 March 1983 [1] 73/9 24 hours [1] 107/18 24 January [1] 69/20 24 January 1983 [1] 71/14 25 [1] 49/12 25-year [1] 146/20 29 November [1] 86/25 2B [1] 27/16</p> <p>3</p> <p>3 million [1] 43/20 3.00 pm [1] 133/24 3.30 [2] 133/21 133/22 3.32 pm [1] 134/1 30 [2] 54/18 147/3 30 years [2] 54/17 83/22 300 people [1] 131/20</p> <p>4</p> <p>4.19 pm [1] 162/11 40 [1] 52/7 40 per cent [1] 49/12 40 years [1] 54/19 42 [1] 63/8</p> <p>6</p> <p>60 per cent [1] 153/12 68 [1] 107/18</p> <p>7</p> <p>70 per cent [1] 92/21 70s [2] 1/23 128/1</p>	<p>8</p> <p>8 December 2020 [1] 1/1 800 [1] 70/11 80s [1] 128/1 84 [3] 57/20 81/25 150/16 8Y [2] 147/10 147/13</p> <p>A</p> <p>aback [1] 9/15 ability [3] 79/13 98/10 106/21 able [28] 1/9 8/20 9/8 9/20 27/13 30/16 38/3 38/4 75/18 80/5 85/23 92/4 96/2 100/16 101/16 107/8 109/4 117/12 120/10 121/13 126/17 126/20 127/7 127/7 127/15 134/14 134/16 144/8 abnormalities [1] 120/24 about [145] 3/2 3/14 5/4 5/10 8/10 8/16 9/16 10/3 12/12 16/6 17/2 17/11 18/5 18/8 20/17 20/18 20/19 20/19 21/19 22/18 23/6 23/20 25/7 25/18 25/19 25/19 27/5 27/6 28/6 28/13 28/17 28/17 29/8 29/14 30/2 35/2 37/14 40/6 41/8 42/5 43/24 45/23 46/16 47/23 47/24 48/9 49/2 51/1 52/7 52/25 53/10 53/15 55/1 56/15 58/2 60/6 60/7 63/14 63/25 64/21 66/13 66/23 67/6 68/9 69/5 69/10 71/7 71/17 74/14 75/6 75/16 75/22 78/9 80/18 81/24 82/2 82/20 84/5 85/8 85/10 85/13 85/18 86/7 86/11 88/6 88/11 89/21 91/7 95/3 95/18 96/2 97/2 99/20 101/8 103/14 103/16 104/18 105/14 106/8 106/11 106/13 106/21 107/12 110/20 110/25 111/5 111/14 112/10 112/14 114/4 115/1 118/11 124/1 124/6 124/17 126/11 134/4 136/1 139/25 141/13 144/11 144/22 146/17 146/18</p>	<p>147/1 149/10 149/12 149/13 149/15 151/22 151/24 152/1 152/2 152/5 152/12 152/14 152/15 152/23 154/15 155/24 156/1 156/15 157/11 158/13 160/18 above [2] 26/13 52/5 ABPI [1] 41/23 abroad [1] 22/16 absence [1] 63/15 absences [1] 19/8 absolute [7] 11/14 22/12 83/1 84/14 138/10 139/5 159/11 absolutely [15] 26/16 32/23 41/21 46/3 60/4 76/5 79/7 83/12 84/14 108/12 117/17 127/1 144/12 152/25 161/1 accede [1] 31/4 accept [5] 59/23 78/21 80/20 95/5 131/4 access [6] 20/5 28/24 45/25 67/17 92/5 106/22 accord [1] 24/17 accredited [1] 123/14 accurate [3] 65/2 79/3 83/13 accurately [1] 17/17 achieve [3] 21/12 39/9 129/12 achieved [1] 26/13 acid [2] 21/2 111/25 acknowledging [1] 58/13 acquired [4] 62/16 62/25 63/7 63/23 across [4] 19/13 114/13 122/5 130/22 Act [1] 159/8 acting [1] 4/20 action [2] 12/14 12/22 actions [1] 6/5 active [1] 148/15 activity [2] 108/1 122/21 actual [3] 121/5 127/5 157/21 actually [32] 12/21 17/10 17/17 18/7 18/11 21/8 26/1 29/6 40/9 41/18 50/14 51/3 93/17 93/20 97/5 97/7 101/15 102/24 116/18 127/17 128/15 129/25 130/4 136/8 138/14 140/8 140/21 141/22 142/4 144/16 145/10 156/2</p>	<p>acute [3] 18/23 92/20 152/4 ad [2] 79/23 138/4 adapting [1] 143/16 add [2] 138/20 160/8 added [1] 54/1 addicts [1] 62/18 addition [4] 39/17 45/8 46/23 137/17 additional [2] 134/16 161/5 address [6] 9/19 29/4 29/4 43/10 109/20 128/13 addressed [5] 46/7 58/10 81/19 130/17 130/17 addresses [2] 28/5 53/8 adequate [13] 6/12 6/21 19/7 19/9 20/4 26/13 40/16 46/4 46/10 52/23 78/18 83/6 130/9 adequately [8] 14/3 15/18 48/25 52/23 53/3 84/1 84/7 155/12 Adjacent [1] 96/16 Adjourned [1] 162/12 Adjournment [1] 95/15 admin [1] 96/13 admission [1] 105/3 admit [1] 116/23 adolescent [1] 116/1 adopted [1] 11/16 adrenaline [1] 30/10 adult [14] 2/24 7/7 14/12 24/21 37/20 45/9 52/7 112/8 115/23 118/2 118/2 118/8 118/8 124/6 adult-treating [1] 118/8 adults [6] 3/8 3/15 117/16 117/19 119/19 152/5 advance [3] 37/8 105/2 105/5 adverse [1] 102/3 advert [1] 102/9 adverts [1] 102/6 advice [12] 44/12 105/14 105/15 106/2 106/18 107/7 118/4 120/22 121/8 128/22 129/10 132/10 advise [2] 122/10 141/12 advised [1] 100/10 advisory [2] 35/9 127/25</p>
--	--	---	--	---	--

A	agreed [5] 36/3 43/2 81/14 88/19 89/4 AIDS [37] 25/18 36/1 36/12 40/25 41/6 59/14 60/6 61/14 62/16 62/25 68/9 68/21 69/5 69/10 70/8 70/12 70/23 73/17 74/22 74/23 75/2 75/11 75/15 76/15 78/3 80/19 81/17 98/20 99/1 99/4 104/12 104/15 104/21 113/2 113/8 142/23 154/10 AIDS-related [4] 104/15 104/21 113/2 142/23 aim [1] 73/16 aimed [1] 60/15 Airport [1] 69/19 Alan [1] 9/2 alarming [1] 62/24 albeit [2] 56/16 154/19 Alder [3] 1/25 30/7 136/9 Alder Hey [2] 30/7 136/9 Alder Hey Hospital [1] 1/25 Aledort [1] 49/21 all [107] 5/20 7/4 7/21 7/25 9/19 13/13 14/7 18/9 18/17 19/4 20/6 20/21 22/3 22/15 22/22 23/21 23/21 27/13 30/14 32/25 36/17 37/2 37/4 37/21 41/24 42/20 43/24 46/17 47/8 49/8 52/21 52/23 60/25 68/12 68/13 68/14 70/15 74/13 74/20 75/1 75/23 76/4 76/11 78/5 78/6 79/20 80/8 80/24 81/9 81/11 83/10 84/9 85/23 86/1 86/6 87/13 87/21 88/14 88/22 93/11 103/2 103/21 103/23 105/8 107/19 108/3 111/6 111/16 113/24 114/17 114/19 118/18 119/24 121/4 121/22 121/23 122/17 122/17 123/1 123/12 123/18 129/11 132/3 132/11 132/13 135/3 135/6 135/15 136/16 136/16 137/8 137/9 138/10 139/4 139/12 140/5 140/10 141/2	146/16 151/12 155/16 160/5 160/9 160/14 160/18 161/13 162/2 all-dancing [1] 136/16 all-pervasive [1] 122/17 all-seeing [1] 122/17 all-singing [1] 136/16 allocated [1] 33/8 allowed [3] 18/12 24/11 116/23 allowing [2] 44/10 133/6 almighty [2] 79/11 119/4 almost [14] 3/8 21/16 23/5 23/21 30/11 39/6 44/9 67/22 68/4 82/16 111/6 118/1 139/23 140/13 alone [1] 152/18 along [8] 10/12 14/13 14/14 27/21 89/17 132/10 143/1 154/23 already [23] 12/15 31/11 31/19 39/25 55/15 63/9 75/22 80/16 88/14 90/11 96/1 113/3 119/22 128/8 131/9 131/19 136/18 143/7 145/18 153/12 160/13 160/20 160/23 also [46] 2/10 2/13 2/14 3/20 9/10 10/3 10/21 12/3 12/7 12/22 13/2 14/15 20/25 26/16 35/2 35/13 39/6 42/13 47/6 47/12 49/19 57/2 69/6 94/13 97/8 97/14 110/8 110/11 113/20 114/1 115/17 116/15 117/8 118/22 120/22 122/24 126/19 127/24 129/13 132/5 138/10 138/19 144/5 148/22 150/13 156/24 ALT [2] 134/7 134/19 alter [1] 50/1 alternative [1] 110/3 alternatives [1] 26/22 although [26] 14/12 14/16 17/15 37/11 38/21 40/15 42/12 51/10 57/20 58/17 68/1 68/5 68/25 72/4 79/6 84/11 94/17 100/6 110/19 118/6 120/8 136/5 141/14 151/14 152/7 156/12 altruistic [2] 23/17	24/13 always [24] 7/5 10/9 24/20 35/14 41/20 45/4 76/17 90/3 92/9 92/11 93/9 93/10 98/14 102/1 110/13 115/11 127/11 145/20 146/21 146/23 147/5 147/24 153/14 153/15 am [11] 1/2 27/5 48/5 48/7 55/3 56/9 99/5 111/15 124/1 154/1 162/7 Am I to [1] 55/3 amazed [1] 156/6 amazing [1] 101/22 America [2] 23/7 24/4 American [1] 47/7 Americas [2] 131/10 150/3 aminophylline [1] 30/9 amongst [6] 10/15 61/17 69/9 71/21 86/9 140/19 amount [5] 36/4 102/3 110/5 111/24 152/18 amounts [1] 26/13 amputation [1] 120/14 anaphylaxis [1] 30/8 anecdotes [1] 39/25 Anna [5] 43/22 98/15 100/6 101/24 139/23 annotated [1] 159/13 annual [2] 18/2 148/10 anonymised [2] 74/16 74/17 another [8] 13/17 24/12 33/3 47/18 54/22 76/4 104/3 156/4 answer [25] 16/12 17/2 22/24 24/15 28/8 53/6 54/5 55/21 75/5 75/21 76/20 78/22 80/10 82/1 90/10 92/7 94/6 94/21 104/3 109/4 116/7 119/16 149/3 150/15 157/13 answered [2] 117/12 129/1 answering [2] 77/7 149/9 answers [2] 144/20 151/18 antibody [1] 99/2 anticipate [1] 133/13 anticoagulant [1] 4/22 antifibrinolytic [1]	111/25 antigen [1] 59/9 anxiety [3] 52/2 55/13 78/19 anxious [1] 93/25 any [89] 1/10 2/2 3/25 6/17 8/11 9/11 9/17 17/17 17/19 26/15 36/6 36/12 37/7 37/10 37/18 37/19 41/21 42/17 42/20 42/23 43/9 44/14 45/24 50/15 58/5 58/20 58/25 62/7 66/19 68/8 68/10 74/2 74/6 74/8 74/15 74/21 74/23 76/12 77/9 84/10 88/12 89/12 90/5 91/1 91/6 96/20 97/18 100/16 102/15 102/21 104/9 104/11 104/14 105/2 106/1 106/10 106/13 106/19 106/21 107/17 108/3 108/8 108/8 108/23 109/6 110/11 115/3 116/14 116/15 117/8 119/17 132/21 133/12 136/9 141/14 142/23 142/23 142/25 143/5 143/23 144/3 144/17 145/15 145/23 147/10 148/6 149/6 156/15 157/9 anybody [3] 87/11 131/21 150/20 anymore [1] 141/10 anyone [9] 1/3 30/15 42/23 47/23 54/9 87/6 136/21 142/21 142/22 anything [22] 16/1 18/5 22/11 32/13 32/15 47/9 47/25 50/22 61/14 80/4 83/21 87/10 87/10 93/22 97/2 106/9 112/13 120/11 143/25 152/13 158/1 160/7 anyway [16] 26/24 36/21 38/9 50/4 94/9 105/10 109/11 119/16 121/16 124/22 125/8 140/14 141/6 141/8 150/22 153/2 anywhere [1] 158/5 apart [2] 3/14 80/4 apologise [1] 161/4 apparent [1] 63/18 apparently [1] 147/15 appear [1] 64/5 appeared [2] 76/9 126/22 appears [4] 32/19	36/8 42/12 71/3 application [1] 99/3 applied [2] 98/21 158/22 applying [1] 36/25 appoint [1] 92/4 appointed [1] 7/10 appointment [6] 2/8 11/11 88/13 89/21 123/19 139/13 appointments [1] 136/23 appreciate [1] 19/17 appreciating [1] 72/23 approach [14] 7/21 9/4 58/20 81/18 98/25 100/14 110/25 115/17 119/10 140/14 142/20 147/25 148/1 161/19 approaches [1] 149/1 approaching [3] 16/1 42/18 42/18 appropriate [8] 27/6 27/15 36/19 55/18 77/24 88/13 119/25 121/24 appropriately [1] 120/2 approve [1] 142/19 April [2] 107/12 147/7 April 1987 [1] 147/7 are [107] 1/6 1/9 6/18 16/16 17/15 22/3 23/13 23/16 28/6 29/2 29/3 29/8 32/23 33/19 35/4 35/20 39/5 39/5 39/10 39/16 40/2 41/3 47/23 54/21 55/16 56/7 56/13 58/4 58/13 59/6 59/6 60/14 63/19 64/4 64/7 64/14 65/1 65/18 69/18 73/19 74/10 79/16 85/23 93/21 93/23 97/23 98/6 101/9 108/20 109/11 111/13 117/18 118/12 118/14 118/17 118/21 119/17 119/22 120/3 120/12 120/16 121/1 121/5 121/5 121/13 124/3 125/4 125/7 125/10 125/13 126/3 128/10 130/11 130/12 130/15 130/18 130/19 131/1 131/4 131/17 132/14 132/15 132/18 133/3 139/2 143/16 144/13 144/22 146/25 147/1 148/1 149/1 149/4 149/23 149/23 149/24 150/4
----------	--	--	---	--	---

A	74/9 74/20 74/24 83/20 90/12 94/8 95/22 97/11 106/11 asking [11] 13/8 54/9 74/10 75/3 84/1 94/2 95/18 111/15 128/5 146/18 156/17 aspect [3] 26/19 39/22 120/7 aspects [3] 132/3 140/17 160/18 assays [1] 109/18 assist [1] 85/23 assistance [1] 92/23 assistants [1] 7/16 assisted [1] 128/4 associate [1] 98/23 associated [2] 49/1 131/15 assumed [3] 52/9 71/11 120/10 assumption [4] 48/16 52/13 53/1 84/17 assumptions [1] 60/3 asymptomatic [1] 104/2 attend [10] 18/2 18/5 44/7 44/8 44/10 47/2 68/15 80/5 80/12 88/16 attendance [6] 20/8 34/17 65/9 87/24 87/25 88/2 attended [15] 11/11 18/8 18/16 33/17 35/11 45/21 52/19 59/3 60/8 61/5 62/10 65/22 65/25 86/25 101/25 attendees [1] 69/22 attending [3] 46/25 71/24 125/6 attention [3] 67/14 73/25 123/25 attitude [4] 77/10 138/21 138/23 146/20 attributed [1] 124/14 audience [1] 1/11 Audio [1] 1/3 audits [1] 135/24 August [1] 4/10 aureus [1] 150/13 Australia [2] 59/9 131/24 authority [1] 129/5 authors [2] 62/19 62/21 autoimmune [2] 10/22 112/24 availability [5] 21/24 66/14 81/4 97/3 137/13	available [31] 1/3 16/17 36/20 37/9 38/8 43/5 43/23 44/4 52/17 58/17 59/8 59/20 74/5 78/12 80/8 83/5 92/11 93/3 93/5 98/3 98/15 100/15 109/24 110/22 114/3 115/6 134/6 137/15 137/16 139/8 146/8 average [2] 11/9 52/6 averse [1] 158/12 avid [1] 46/13 avoid [2] 30/25 110/16 await [1] 87/24 aware [30] 23/9 31/7 31/19 40/15 44/15 45/19 57/2 57/5 57/9 57/12 57/13 58/8 66/5 66/25 69/18 71/11 71/16 72/12 77/8 77/8 78/8 82/9 89/1 124/18 141/19 141/25 142/6 142/14 143/18 147/9 awareness [1] 57/15 away [6] 18/11 21/15 96/21 149/25 150/17 150/18 AZT [1] 113/4	B back [33] 12/6 12/11 13/16 17/18 25/9 30/12 46/15 48/3 53/12 78/21 90/4 90/18 90/24 94/14 95/10 95/17 100/2 122/1 126/8 126/10 133/17 134/17 139/24 140/25 141/14 144/1 145/3 151/16 151/21 154/2 155/8 159/5 161/13 background [1] 43/24 backup [1] 122/3 bacterial [1] 150/12 bad [5] 17/9 101/7 109/8 127/8 148/2 bag [1] 124/4 balance [1] 89/14 Ball [1] 112/17 bans [1] 41/23 bar [1] 124/24 barely [1] 135/22 barrier [1] 102/17 based [5] 39/24 84/23 121/19 125/18 129/10 basically [39] 5/15 6/3 6/8 8/23 10/1 11/16 13/13 20/17 21/22 23/4 25/19	27/12 28/15 29/11 41/13 42/24 43/21 45/8 47/8 50/7 50/21 55/10 94/12 98/11 99/25 101/11 102/11 105/13 106/18 110/8 110/10 111/2 117/5 129/8 134/9 138/23 140/12 146/15 154/25 basics [1] 6/18 basis [12] 26/17 33/15 33/20 34/23 47/11 48/15 78/24 80/14 82/12 90/17 121/12 124/13 batch [3] 32/18 33/8 70/18 batches [1] 33/4 bats [3] 131/20 131/24 132/18 battles [2] 7/4 101/3 Bayer [4] 4/18 4/19 5/3 40/8 be [233] bearing [2] 28/23 133/14 became [8] 17/21 18/15 36/20 52/17 109/24 114/3 115/5 148/9 because [102] 1/4 2/22 6/5 16/14 16/20 17/12 17/19 19/7 20/3 21/5 21/23 22/1 22/4 22/21 23/19 24/18 25/8 29/9 30/24 31/16 32/2 32/15 35/6 35/25 36/11 41/10 43/18 44/22 50/1 50/22 53/25 56/8 59/21 60/8 61/6 61/9 62/6 66/6 66/18 75/1 76/15 80/6 81/3 83/7 84/9 85/6 86/5 88/1 88/8 88/16 88/22 88/23 89/2 89/7 90/17 91/5 92/13 94/10 96/21 97/16 100/22 101/18 102/13 104/1 104/22 105/5 108/4 108/25 109/16 109/18 110/5 113/12 114/13 117/2 119/14 122/21 124/2 126/14 128/6 128/13 129/20 134/15 140/2 143/2 143/10 147/12 150/9 151/12 151/24 152/3 152/25 153/1 154/22 155/1 155/23 157/20 158/2 158/14 159/10 160/3 160/12 161/10 become [6] 14/25	61/6 72/13 104/11 158/2 158/11 becomes [1] 56/7 becoming [7] 37/8 72/12 77/11 93/24 98/12 104/14 153/24 beds [2] 9/12 136/4 been [133] 10/17 11/19 13/8 14/4 16/3 16/11 17/22 22/5 22/6 22/17 23/4 27/13 30/16 31/10 31/21 32/7 33/10 35/1 37/14 38/24 40/23 41/10 42/11 42/25 44/14 46/13 46/24 52/10 53/2 53/2 53/9 53/17 56/1 57/16 58/11 58/14 59/3 59/7 59/8 66/4 66/5 66/9 66/15 67/10 68/16 69/6 70/11 70/14 70/24 71/6 71/16 71/24 72/3 72/12 75/14 76/8 77/12 77/21 82/9 83/16 84/15 84/17 85/24 86/15 87/3 88/3 89/15 90/12 90/16 96/10 96/12 99/17 100/15 105/2 105/11 105/19 107/8 107/13 107/15 108/7 109/15 110/10 110/22 110/22 110/25 112/5 112/15 112/16 113/4 114/11 115/4 116/1 117/6 120/25 121/19 121/20 123/13 124/18 125/17 125/23 126/1 126/22 129/14 129/15 130/13 131/3 133/9 136/10 138/11 141/25 143/1 144/21 147/20 147/24 148/10 150/24 151/25 152/4 152/21 152/23 153/18 153/21 155/16 155/21 155/24 156/10 156/10 156/13 156/21 158/18 158/20 161/10 161/24 before [23] 14/22 25/18 26/5 27/12 34/18 37/18 57/18 57/20 74/3 74/4 78/14 81/22 81/24 83/2 88/22 91/12 95/19 100/17 101/8 111/16 123/14 127/15 142/9 began [3] 46/17 66/7 97/1 beggar [1] 26/17 begin [2] 19/21 77/15	beginning [3] 3/5 19/21 86/7 behalf [1] 101/3 behavioural [1] 132/11 behind [1] 96/22 being [48] 17/3 20/1 23/11 24/4 25/11 29/6 35/20 36/9 36/22 37/10 49/17 53/20 54/3 57/13 62/11 64/21 69/9 70/10 71/20 72/4 72/17 72/24 72/25 74/20 74/24 78/16 83/21 84/5 86/13 89/11 93/1 94/2 96/6 99/3 101/4 114/14 120/17 126/17 126/20 127/18 139/8 140/9 141/3 141/6 143/8 145/19 147/9 161/20 Belfast [1] 135/25 belief [3] 48/15 124/21 124/22 believe [14] 21/1 26/23 42/2 48/24 87/18 105/25 108/5 118/15 121/2 128/17 130/25 145/25 147/22 156/5 believed [4] 100/9 107/21 115/12 128/19 benefit [1] 89/23 benefits [1] 60/2 bereavement [2] 98/8 138/6 best [17] 16/16 19/5 31/2 35/12 38/20 40/5 65/23 76/25 81/8 81/9 81/9 88/10 117/12 121/9 121/22 136/7 136/11 better [26] 10/9 47/16 53/1 55/22 84/20 89/15 100/24 102/6 114/7 116/2 127/11 129/14 129/17 131/6 140/4 154/17 154/19 155/3 155/17 155/24 156/10 156/12 156/14 157/15 159/21 159/22 between [20] 1/8 5/2 19/23 33/24 34/21 49/12 49/15 51/23 81/13 81/14 86/18 91/6 115/9 115/16 116/5 116/18 116/22 117/1 119/18 132/5 beyond [1] 97/21 big [3] 75/21 114/21 126/19
----------	--	---	--	---	---	--

B biggest [4] 10/13 19/5 137/5 159/2 biochemistry [1] 134/22 biopsies [5] 49/22 51/16 56/10 106/11 106/14 biopsy [2] 57/7 57/12 bit [25] 20/18 21/18 23/19 28/8 29/2 33/9 35/18 44/19 54/25 55/22 75/15 75/24 102/6 111/18 124/21 126/4 128/22 138/22 138/24 138/25 140/2 141/15 143/20 147/21 149/15 bits [2] 54/21 140/5 black [2] 103/10 145/1 blame [1] 94/11 blamed [1] 94/16 bleed [3] 27/20 29/22 108/20 bleeding [21] 2/3 3/13 11/8 13/12 14/6 18/19 20/14 30/18 30/19 65/15 70/21 114/5 115/4 115/20 117/14 124/24 124/25 125/12 135/17 135/22 143/5 bleeds [2] 27/16 33/20 block [1] 87/19 blood [58] 2/12 4/24 5/6 6/12 6/16 21/25 23/6 23/10 23/12 23/12 23/24 24/22 25/4 34/15 37/19 41/22 45/15 55/10 55/11 57/22 64/4 70/20 70/20 72/6 75/3 82/19 83/18 83/19 83/21 114/16 121/11 121/21 122/8 122/11 122/14 123/2 123/2 123/18 124/4 124/12 124/16 124/23 125/5 125/20 125/25 126/2 128/9 131/9 134/11 135/17 140/15 147/2 156/22 158/11 158/11 158/14 158/17 159/12 Bloom [1] 73/24 blue [1] 150/21 board [13] 14/18 19/2 25/3 26/6 26/7 61/2 97/21 114/13 130/22 135/1 135/6 137/1 160/16	Bob [2] 25/2 141/22 body [2] 64/4 127/25 bolstering [1] 9/13 bombshell [1] 64/22 bone [10] 3/7 3/16 8/24 9/1 15/24 16/1 18/8 120/13 126/3 141/24 Bonn [1] 127/13 book [10] 21/9 44/3 52/19 58/18 59/5 59/7 66/21 66/22 66/22 103/10 both [6] 22/8 51/5 88/11 116/13 118/18 146/21 bottle [2] 29/6 39/11 bottom [2] 61/20 64/1 bought [2] 66/21 89/8 Bowie [1] 149/5 boys [4] 91/8 96/25 104/11 105/3 boys' [1] 89/9 BPL [1] 147/10 brain [2] 7/22 40/6 bravely [1] 51/15 Brazil [1] 47/5 break [10] 21/7 47/19 47/21 48/2 48/6 95/9 133/16 133/21 133/25 148/25 break-that [1] 148/25 breaking [2] 109/3 133/15 breakthroughs [1] 41/18 Brentwood [1] 4/4 Brexit [1] 122/5 Brian [4] 145/2 149/8 160/11 163/4 brief [4] 12/18 54/8 76/11 160/10 briefly [2] 21/20 95/18 brilliant [1] 116/2 bring [3] 89/15 91/23 133/5 bringing [1] 95/10 brings [2] 48/23 82/2 British [1] 47/3 broaden [1] 147/20 broadened [2] 148/4 148/9 broaden [3] 16/10 17/22 65/14 broadly [2] 20/15 36/25 broken [1] 94/24 brought [3] 1/12 33/16 130/13 BT [1] 122/2 buck [1] 60/4 budget [1] 122/18	budgets [1] 32/13 building [1] 96/16 built [1] 159/16 Bulletin [1] 79/1 bunch [1] 128/21 burgeoning [1] 66/7 Burnett [2] 9/2 9/3 business [1] 45/3 but [247] but with [1] 136/14 butterflies [1] 140/5 buy [1] 138/25 by [94] 1/17 3/12 5/21 7/15 9/10 13/23 14/15 15/5 23/13 25/5 28/11 29/4 36/10 36/21 43/18 49/2 49/11 50/5 50/19 51/2 51/23 60/17 63/18 64/2 64/18 65/4 65/19 65/23 65/25 66/10 66/19 68/20 69/10 71/25 72/1 72/8 72/9 72/12 72/25 74/25 75/2 76/15 81/19 82/3 82/9 84/17 86/25 87/3 87/6 87/23 90/15 91/3 92/1 94/4 94/19 95/19 97/12 99/25 103/3 105/6 110/1 111/16 111/16 112/4 112/16 113/5 113/19 114/23 118/8 119/8 121/8 122/1 122/4 122/16 123/16 124/5 124/13 125/23 133/9 133/18 134/3 136/8 136/21 139/23 142/19 144/6 148/15 148/16 149/8 153/17 154/6 157/2 163/3 163/4 by a [1] 136/8	103/22 104/8 122/21 123/16 127/10 129/1 134/17 135/3 136/22 138/13 145/21 154/23 158/6 159/7 160/3 160/4 can [97] 1/18 4/7 8/10 15/5 15/15 20/12 20/14 21/18 22/13 23/2 23/15 23/23 25/7 28/3 28/9 29/5 29/8 30/12 32/20 34/11 34/12 34/14 34/17 34/22 35/5 35/19 36/14 37/6 38/24 39/2 39/19 42/9 43/7 47/24 53/12 54/7 54/24 55/7 55/16 56/9 56/13 59/5 59/25 62/11 62/14 62/19 63/5 63/14 64/14 64/25 65/14 66/2 69/22 71/1 71/2 71/13 73/8 73/18 73/23 77/1 81/1 83/23 84/2 84/6 86/1 86/11 88/6 93/25 94/7 94/14 96/6 97/2 99/11 99/12 103/11 107/19 109/20 111/18 114/4 123/10 123/23 126/16 128/3 129/5 133/17 135/9 144/12 144/17 149/15 150/11 150/13 154/21 155/15 157/9 159/4 160/24 161/12 can't [25] 4/9 22/12 32/24 57/13 68/10 68/15 74/16 78/5 80/10 86/10 86/19 94/17 97/6 100/18 102/14 105/6 105/22 107/16 108/2 126/24 140/12 141/9 143/25 156/17 158/4 Canada [1] 134/15 cancer [5] 14/7 51/21 60/18 60/24 97/15 cannot [2] 38/21 110/2 capable [1] 93/24 caravan [1] 136/14 cardiac [2] 114/16 125/12 cardiology [1] 11/1 carditis [1] 61/7 care [30] 2/2 8/19 12/8 14/6 14/7 15/4 16/16 20/14 64/16 65/15 80/16 88/17 89/18 97/12 107/14 109/7 112/8 113/9 116/5 116/16 138/1	138/1 147/23 147/25 147/25 156/23 159/18 159/25 160/17 160/17 career [6] 1/22 92/10 93/7 93/16 124/19 161/25 careful [2] 103/16 152/12 carried [4] 122/21 123/13 125/22 157/25 carriers [1] 132/18 carry [4] 2/24 87/17 137/16 156/5 case [19] 23/24 24/22 29/7 38/2 52/6 54/6 55/19 70/23 84/11 90/1 95/9 108/23 109/6 118/5 118/7 123/22 146/15 146/16 152/20 cases [14] 39/14 49/12 55/20 67/11 67/15 70/16 70/19 71/5 73/1 73/17 73/22 74/21 74/23 75/4 Cash [8] 25/5 33/3 35/19 36/4 37/17 38/14 38/17 107/22 casualty [1] 13/23 cat [1] 48/1 categories [1] 27/10 cause [8] 28/19 30/1 37/22 49/5 62/2 72/4 90/9 151/11 caused [5] 65/4 76/15 90/1 161/3 161/5 causes [3] 28/22 55/16 146/24 causing [4] 44/23 52/1 76/6 131/10 caveat [1] 58/5 CD4 [2] 105/24 142/19 CD4:CD8 [1] 142/12 CDC [1] 67/13 cease [2] 115/21 141/12 cells [1] 150/9 cellular [1] 150/4 cent [13] 18/25 26/14 49/12 51/19 51/22 70/13 76/5 92/21 153/11 153/12 154/5 154/5 158/24 central [1] 129/15 centralised [3] 74/12 107/1 122/7 centre [34] 4/1 5/10 7/19 8/18 8/19 8/25 9/1 9/22 10/2 10/18 16/5 16/24 17/4 17/6 17/8 17/23 17/24 33/16 69/23 69/24	73/12 73/15 80/16 87/25 88/17 97/22 97/24 113/16 118/14 136/3 136/10 136/12 136/13 159/16 centres [14] 2/4 3/19 16/20 16/20 30/14 116/16 117/1 118/2 118/8 119/2 119/11 121/11 136/6 136/7 century [1] 133/1 certain [16] 7/20 31/13 36/3 48/24 49/1 50/19 53/25 62/25 68/4 82/16 86/11 93/4 114/12 129/12 144/13 157/17 certainly [43] 11/24 19/17 19/23 20/2 20/23 23/16 24/1 24/13 24/21 30/11 34/25 38/22 39/7 53/19 57/8 59/8 59/13 67/20 67/24 68/16 71/25 77/22 89/24 92/9 92/23 100/25 104/13 111/8 115/13 122/1 128/25 142/6 142/17 142/24 142/25 146/2 146/7 148/9 148/21 151/1 151/16 151/20 152/14 cessation [1] 139/21 cetera [39] 3/17 11/2 20/5 21/3 21/13 23/7 23/9 26/22 28/25 41/25 44/1 45/4 45/10 45/15 46/8 47/5 48/22 55/9 60/25 67/1 67/2 74/13 81/12 100/8 100/20 101/19 105/17 112/1 119/11 124/8 125/24 129/7 136/4 138/8 139/1 139/15 150/13 159/6 159/9 challenges [2] 5/22 104/4 Chalmers [2] 91/3 144/25 chance [2] 43/18 110/1 change [6] 27/4 27/23 33/15 40/23 101/23 131/8 changed [5] 23/1 121/25 122/1 127/17 161/18 changes [7] 6/23 11/5 21/14 25/12 33/13 139/19 140/17 changing [1] 156/4 characterisation [1]
---	--	---	--	--	---

(45) biggest - characterisation

C					
characterisation... [1] 53/23	circumstance [2] 55/7 55/15	Colindale [1] 4/5	communications [3] 12/2 19/6 137/16	66/15 67/12	34/1 123/7 149/23
characterising [1] 53/19	circumstances [3] 112/14 116/25 147/5	collaborate [1] 73/21	communicator [1] 12/10	confident [1] 41/4	continued [4] 33/19 77/15 108/14 109/14
charitable [3] 7/16 13/6 100/20	cities [1] 63/1	collaboration [2] 112/17 132/8	community [1] 128/20	confidential [2] 138/18 146/19	continuing [1] 24/5
charity [3] 5/21 46/16 134/15	CJD [1] 54/12	collaborative [1] 57/7	companies [4] 41/25	Confidentiality [1] 96/11	contract [1] 16/23
Charles [1] 28/11	clamour [2] 151/20 152/16	colleague [1] 116/4	42/22 47/9 148/16	confirm [2] 127/7 127/8	contracts [1] 116/20
check [1] 71/10	clarification [1] 90/13	colleagues [1] 106/7	company [2] 4/18 140/4	confirmatory [1] 87/18	control [5] 6/8 132/19 140/19 140/21 158/9
checked [1] 66/3	clarified [1] 120/8	collect [1] 33/17	compared [2] 31/9 110/6	confirmed [2] 50/5 87/21	controversial [1] 77/14
chemotherapy [1] 7/25	class [1] 122/2	collecting [1] 39/22	compelling [1] 127/6	conflation [1] 75/15	convenient [1] 71/20
chief [4] 32/10 102/25 103/8 138/17	Clayton [1] 106/5	collection [3] 9/9 39/24 157/16	competent [1] 120/17	confusing [1] 86/5	conversation [3] 12/19 24/16 81/20
child [13] 30/16 70/22 77/3 92/6 92/6 92/9 92/17 98/7 98/12 98/16 102/15 104/14 120/15	clear [6] 48/13 61/10 72/13 75/16 92/10 150/21	combination [1] 135/2	complain [1] 156/8	congenital [1] 120/24	conversations [4] 25/2 80/1 80/1 106/12
childhood [2] 2/11 28/23	clearance [1] 51/20	come [26] 2/9 10/7 10/12 12/6 12/11 13/22 16/20 19/2 24/25 25/9 30/12 34/10 48/3 48/21 90/4 121/5 123/12 123/14 123/24 128/7 130/25 133/2 133/3 133/17 155/22 158/15	complete [2] 103/25 159/12	consensus [3] 26/23 129/12 152/7	converted [2] 10/1 135/21
children [79] 3/9 3/11 7/23 12/25 14/17 16/15 21/6 21/9 23/8 28/3 28/7 29/1 30/1 30/4 30/20 30/21 30/22 35/25 36/11 36/18 37/1 37/5 37/18 38/5 38/21 40/25 43/20 51/4 51/14 55/11 56/10 57/1 58/11 75/20 77/2 83/7 84/5 91/13 91/19 91/25 92/2 92/15 93/6 93/8 93/9 93/19 93/23 97/10 97/15 99/21 101/23 102/7 102/12 104/17 108/25 109/5 109/6 117/14 117/18 118/1 118/7 118/24 119/1 119/7 119/19 120/9 120/13 120/23 121/3 121/9 125/16 127/21 133/1 135/16 143/12 145/16 152/3 156/23 160/16	clinically [1] 50/4	comes [6] 58/9 119/19 131/20 131/24 152/12 160/19	completely [4] 6/14 12/7 50/12 58/7	consent [5] 43/2 83/21 120/10 124/8 143/18	Coombs [1] 6/17 cope [1] 55/14 coped [1] 97/11 coping [1] 143/12
children's [6] 2/1 14/9 58/6 108/6 113/22 136/9	clinician [4] 60/1 79/2 79/3 97/20	coming [12] 1/6 13/7 31/10 52/11 79/11 90/18 128/16 128/17 129/6 129/11 131/17 150/20	compromised [1] 158/20	consequence [2] 11/3 34/4	copy [1] 103/10
chlorpheniramine [1] 30/9	clinicians [4] 32/17 58/22 69/10 71/22	commas [1] 11/17	computerisation [1] 6/12	consequences [2] 53/21 56/3	core [3] 133/10 133/19 134/3
Christmas [3] 110/1 110/15 112/1	clinics [7] 8/1 79/25 79/25 80/11 113/10 113/12 137/22	commencement [1] 162/9	concentrate [19] 21/23 22/4 22/16 22/19 24/6 32/9 34/4 37/24 49/4 49/23 107/13 108/11 110/7 110/17 111/6 139/20 140/18 140/19 141/1	conservative [1] 25/23	corners [1] 129/11
chronic [3] 56/18 119/15 153/13	closer [1] 127/19	commercial [19] 21/16 21/23 22/3 22/18 24/6 25/13 31/20 31/22 31/23 32/9 41/15 42/22 94/11 94/16 111/7 141/1 145/13 148/16 151/16	25/14 25/15 25/23 27/22 28/12 30/25 31/20 31/22 41/15 47/9 94/11 94/16 110/21 151/17	conservatively [1] 25/15	correct [24] 2/19 4/12 4/13 8/8 22/19 25/16 30/24 31/1 41/7 55/24 55/25 56/1 56/21 58/16 59/11 65/7 66/3 71/11 82/1 87/3 95/20 107/21 129/6 145/8
Cinderella [1] 126/4	clotting [2] 134/12 134/18	committee [2] 123/21 129/16	concentrate's [1] 153/6	consider [4] 26/21 110/18 117/13 148/22	corrected [2] 5/24 153/22
circulated [1] 74/3	clue [2] 75/21 144/15	committees [1] 125/7	concentrates [17] 4/20 21/16 21/18 25/14 25/15 25/23 27/22 28/12 30/25 31/20 31/22 41/15 47/9 94/11 94/16 110/21 151/17	considerations [3] 117/15 119/18 120/3	correction [1] 6/2
circulating [1] 46/18	CMV [2] 39/16 125/25	common [10] 54/23 55/11 66/20 77/17 105/10 119/15 119/15 131/14 136/5 140/13	concern [6] 23/20 23/21 23/22 41/8 50/2 122/25	considered [3] 32/19 43/4 143/3	correctly [1] 36/23
circulation [1] 73/15	co [6] 62/1 105/19 113/25 115/16 119/13 148/1	commonest [2] 28/19 28/22	concerned [16] 22/23 37/16 37/24 38/10 39/22 40/2 40/3 41/16 60/14 74/14 76/2 99/7 103/12 136/17 150/22 160/2	constant [1] 101/3	correspondence [1] 38/13
	co-manage [1] 119/13	commonly [1] 24/22	concerns [5] 6/21 21/6 28/6 39/19 81/18	constantly [1] 103/20	corridor [1] 134/22
	co-morbidities [1] 62/1	communicate [3] 48/25 54/5 139/4	concerns: one [1] 127/24	consultant [7] 4/14 5/4 10/15 12/24 112/12 116/5 161/21	cost [3] 47/5 127/2 158/3
	co-ordinated [1] 113/25	communicating [1] 161/6	concluding [1] 128/12	consultants [2] 22/5 130/12	costly [1] 22/21
	co-ordination [2] 115/16 148/1	communication [9] 12/12 17/14 66/13 73/6 79/10 118/18 137/5 138/2 138/2	conclusion [1] 132/1	Consumer [1] 159/8	costs [1] 32/15
	co-trimoxazole [1] 105/19		concurred [1] 36/1	contact [10] 32/10 35/15 47/8 81/8 81/8 87/9 87/15 107/6 107/8 155/3	cough [1] 105/16
	coagulation [2] 6/13 134/12		condition [1] 48/15	contacted [5] 22/2 22/9 37/17 97/7 146/17	could [65] 7/2 8/15 8/21 21/10 24/5 24/17 26/4 26/9 26/12 29/25 30/3 30/6 33/4 35/16 35/23 36/5 50/11 50/24 51/20 54/1 54/15 54/15 54/17 55/9 55/13 56/2 56/5 56/18 56/18 58/8 62/13 66/15 77/25 85/25 86/15 86/20 87/17 90/4 90/6 91/18 92/19 95/2 96/4 97/11 97/13 98/1 98/18 101/5 101/10 103/2 123/8 127/4 127/20 127/23 128/4 133/16 135/22 138/18 142/18
	Cochrane [1] 125/24		conference [6] 65/2 65/10 65/22 65/24	containing [1] 144/4	
	cohort [3] 52/7 112/20 159/16			contemplate [1] 24/5	
				context [7] 16/10 23/19 24/5 41/14 55/8 70/6 102/2	
				continue [4] 26/15	

<p>C</p> <p>could... [6] 143/13 146/8 147/20 148/10 148/18 148/22</p> <p>couldn't [9] 6/11 27/16 50/16 101/12 101/14 101/18 136/25 152/17 152/17</p> <p>counsel [1] 149/5</p> <p>counselling [23] 82/21 82/23 83/25 84/7 84/9 91/22 97/4 97/19 98/9 98/17 98/20 113/22 114/8 114/24 114/25 118/18 118/21 137/12 138/6 148/3 154/17 154/19 155/17</p> <p>Counselling/AIDS [1] 98/20</p> <p>counsellors [2] 92/5 138/3</p> <p>count [2] 6/12 112/24</p> <p>country [6] 15/10 15/12 122/6 132/21 140/24 156/25</p> <p>counts [3] 105/24 142/12 142/19</p> <p>couple [6] 3/3 85/25 89/16 102/10 109/10 126/7</p> <p>course [24] 3/20 12/7 14/11 14/25 18/22 21/5 37/11 50/12 51/18 55/18 55/19 61/25 63/12 72/19 79/24 82/21 99/9 101/13 114/18 120/24 126/6 143/21 146/24 158/2</p> <p>Court [1] 158/4</p> <p>courts [1] 122/22</p> <p>cover [3] 6/21 7/6 13/16</p> <p>Covid [4] 1/4 45/6 103/19 104/1</p> <p>Covid-19 [3] 45/6 103/19 104/1</p> <p>coxsackievirus [1] 61/8</p> <p>cracked [1] 76/3</p> <p>Craske [6] 70/7 72/25 73/6 73/20 73/24 74/21</p> <p>Crawford [4] 22/9 24/16 25/2 33/2</p> <p>crippling [1] 11/22</p> <p>crisis [5] 18/23 37/13 139/18 149/25 151/6</p> <p>criteria [2] 50/16 73/19</p>	<p>critical [1] 154/15</p> <p>criticising [1] 58/6</p> <p>cross [2] 6/18 109/19</p> <p>cross-infection [1] 109/19</p> <p>cross-matching [1] 6/18</p> <p>crucial [2] 87/13 151/15</p> <p>crying [2] 37/11 149/12</p> <p>cryo [8] 27/5 29/11 36/2 36/4 37/3 49/24 94/19 110/9</p> <p>cryoprecipitate [34] 21/3 26/25 27/7 27/10 27/23 28/1 28/3 28/7 28/15 29/7 29/10 29/21 30/21 31/3 31/4 31/12 35/23 35/24 36/9 36/22 44/2 108/15 108/24 109/7 109/15 110/5 111/11 111/20 111/23 124/15 125/11 144/22 145/5 145/13</p> <p>CT [1] 28/24</p> <p>cupboard [2] 10/1 135/21</p> <p>curative [1] 38/9</p> <p>current [4] 18/23 50/1 70/8 87/22</p> <p>currently [1] 96/9</p> <p>Customs [1] 101/18</p> <p>cut [2] 26/19 61/17</p> <p>cytomegalovirus [1] 63/25</p> <p>D</p> <p>dabble [1] 115/13</p> <p>daily [2] 67/19 82/12</p> <p>damage [1] 49/10</p> <p>damaging [2] 52/3 54/21</p> <p>Dame [1] 50/20</p> <p>Dame Sheila Sherlock [1] 50/20</p> <p>Damocles [2] 52/5 56/8</p> <p>dancing [1] 136/16</p> <p>danger [1] 36/1</p> <p>dangerous [3] 41/1 41/9 56/11</p> <p>dare [1] 139/1</p> <p>data [5] 9/9 39/21 43/4 125/18 157/15</p> <p>date [6] 46/1 62/11 71/13 72/8 85/5 99/12</p> <p>dated [2] 38/16 73/8</p> <p>dates [2] 78/5 111/3</p> <p>David [1] 2/15</p> <p>day [23] 1/10 8/19</p>	<p>12/8 16/18 23/11 23/23 80/16 82/20 82/23 88/17 90/4 90/4 91/12 91/12 97/12 102/8 122/14 122/14 137/23 142/3 147/25 162/4 162/12</p> <p>day-to-day [1] 91/12</p> <p>days [13] 4/3 4/4 16/18 22/1 22/14 23/14 23/16 54/23 61/13 61/16 66/20 122/15 125/2</p> <p>DDAVP [6] 21/2 26/22 27/15 30/23 110/9 111/24</p> <p>deal [24] 6/19 10/22 19/16 20/7 32/7 33/22 51/24 99/16 101/25 104/5 113/21 114/7 116/2 117/2 117/4 122/4 123/15 124/20 126/10 129/14 131/10 150/5 154/21 156/3</p> <p>dealing [13] 3/15 18/18 19/7 43/19 45/15 92/14 98/7 119/7 128/23 130/2 130/5 148/24 157/12</p> <p>deals [1] 59/9</p> <p>dealt [9] 52/20 90/6 102/1 139/23 140/8 155/12 155/17 157/11 159/2</p> <p>Dear [1] 73/10</p> <p>death [7] 28/14 28/20 31/15 31/16 57/11 98/8 143/14</p> <p>deaths [4] 44/23 44/23 56/12 60/20</p> <p>debilitating [1] 54/19</p> <p>decade [1] 52/11</p> <p>December [8] 1/1 38/16 70/11 70/24 85/8 85/12 85/14 107/11</p> <p>December 1984 [1] 107/11</p> <p>decide [1] 120/6</p> <p>decision [4] 22/21 81/5 88/7 88/9</p> <p>decisions [3] 9/16 43/10 122/18</p> <p>dedicate [1] 33/4</p> <p>dedicated [3] 80/7 80/7 80/8</p> <p>dedication [1] 32/18</p> <p>deficiencies [2] 5/23 114/17</p> <p>deficiency [3] 10/20 97/16 142/11</p> <p>define [1] 56/6</p>	<p>definite [1] 109/13</p> <p>definitely [2] 17/24 69/8</p> <p>definition [1] 56/23</p> <p>degree [7] 11/22 11/22 11/23 24/17 42/3 131/15 137/14</p> <p>delay [2] 20/8 90/8</p> <p>dental [2] 102/23 103/3</p> <p>department [20] 8/4 19/19 35/4 35/10 68/5 68/14 96/14 97/17 98/1 102/24 103/6 103/8 107/2 107/4 108/17 112/18 113/5 116/11 120/20 135/2</p> <p>department's [1] 46/19</p> <p>departments [1] 135/19</p> <p>departure [2] 12/13 105/1</p> <p>depend [1] 86/12</p> <p>depended [4] 11/21 81/3 105/23 115/24</p> <p>dependent [1] 156/7</p> <p>depending [1] 18/22</p> <p>depends [1] 81/22</p> <p>depressed [2] 93/25 98/12</p> <p>deputy [2] 102/25 103/8</p> <p>describe [1] 129/8</p> <p>described [12] 11/6 21/11 57/5 64/20 87/23 100/3 105/12 124/10 134/20 137/5 151/20 161/22</p> <p>describes [1] 145/11</p> <p>describing [1] 145/2</p> <p>description [3] 63/11 75/23 142/23</p> <p>Desforges [1] 68/21</p> <p>designated [8] 9/12 9/17 16/5 16/16 17/5 21/8 136/6 136/9</p> <p>designation [3] 9/5 16/8 16/19</p> <p>despairing [1] 12/20</p> <p>desperate [1] 42/24</p> <p>despite [7] 6/14 16/3 50/14 52/14 61/10 124/6 156/16</p> <p>destruction [1] 22/20</p> <p>detail [4] 20/11 21/4 123/25 151/25</p> <p>detailed [1] 81/1</p> <p>details [2] 63/19 68/11</p> <p>detergent [1] 151/3</p> <p>devastating [4] 64/17</p>	<p>89/22 94/3 94/5</p> <p>devastation [1] 64/15</p> <p>develop [6] 15/23 38/1 54/17 64/8 113/8 154/10</p> <p>developed [8] 30/8 32/4 70/23 106/19 112/22 112/23 145/4 153/12</p> <p>developing [5] 4/19 4/21 38/6 104/14 113/1</p> <p>development [5] 15/15 43/1 79/13 83/9 83/14</p> <p>developments [5] 10/12 15/23 15/24 46/2 74/2</p> <p>diagnosed [2] 26/25 36/16</p> <p>diagnosis [4] 50/8 51/6 56/24 142/13</p> <p>diagnostic [4] 54/14 98/11 98/14 100/13</p> <p>dialogue [1] 81/20</p> <p>diatribe [1] 145/10</p> <p>did [107] 2/2 2/10 2/20 6/23 8/17 8/22 9/11 10/10 16/8 16/25 17/3 17/9 18/2 18/4 20/5 25/19 28/2 28/24 29/18 30/17 30/21 30/22 31/4 31/4 33/3 34/23 38/1 42/1 45/4 45/4 45/13 46/10 49/8 52/12 52/25 52/25 54/4 55/18 56/17 57/23 59/1 68/25 72/8 74/22 76/9 76/22 77/22 78/4 79/17 80/3 81/5 81/6 82/24 82/24 82/25 83/25 87/9 87/10 88/15 90/8 90/22 91/1 91/23 94/2 94/6 95/23 97/13 98/2 104/9 107/24 108/4 108/8 110/16 110/24 112/13 113/7 113/13 115/3 115/20 116/21 117/13 125/20 133/3 136/9 137/1 137/6 139/19 139/25 140/18 140/22 141/1 141/24 142/1 142/19 142/25 144/5 144/17 145/1 145/1 145/3 147/13 150/19 150/20 151/10 151/11 151/24 154/8</p> <p>didn't [62] 6/17 6/25 7/1 7/5 9/16 12/4 13/20 14/22 15/25 17/19 19/17 23/6 23/7</p>	<p>26/15 26/17 32/12 32/13 32/17 34/2 34/3 42/23 48/18 53/25 54/3 54/14 57/20 58/13 61/25 72/10 72/15 72/20 72/23 74/23 75/17 76/12 76/13 79/22 80/6 81/3 82/17 95/25 102/8 103/3 108/1 113/12 115/11 115/13 132/12 135/12 137/18 140/21 140/25 141/9 142/4 142/25 146/5 151/16 152/2 152/5 154/2 155/1 155/18</p> <p>die [1] 102/8</p> <p>died [5] 63/9 63/10 70/15 73/2 92/21</p> <p>difference [1] 26/4</p> <p>differences [1] 64/9</p> <p>different [21] 17/13 19/14 65/18 69/14 76/9 77/5 94/10 95/2 95/8 117/15 117/19 117/20 117/21 117/22 118/11 118/22 118/23 119/17 129/10 129/11 161/9</p> <p>differently [1] 118/25</p> <p>difficult [34] 6/25 7/2 8/5 10/7 14/2 17/18 18/14 20/11 22/21 24/24 29/16 29/19 30/19 55/11 66/18 81/5 88/9 91/4 96/11 101/24 103/17 110/4 119/14 120/6 120/16 121/1 129/12 129/14 135/3 139/13 150/5 155/1 155/25 159/19</p> <p>difficulties [3] 17/12 103/15 109/17</p> <p>difficulty [4] 16/13 25/17 101/12 145/18</p> <p>direct [1] 111/17</p> <p>directly [3] 99/7 123/20 138/17</p> <p>director [5] 5/8 16/23 73/10 73/12 122/16</p> <p>directors [11] 34/15 34/16 34/21 42/21 69/24 69/24 73/15 74/20 75/1 75/4 75/11</p> <p>directors' [1] 18/1</p> <p>disagree [3] 53/22 53/25 95/4</p> <p>disagreed [1] 53/23</p> <p>disappointing [1] 131/3</p> <p>disaster [2] 38/6 44/22</p>
--	--	---	--	---	--

(47) could... - disaster

D	32/1 36/12 36/23 37/12 38/20 39/13 42/17 53/5 54/5 54/18 55/4 58/25 59/15 59/20 68/8 74/6 74/22 74/25 75/12 81/22 83/23 87/5 87/10 88/10 89/12 91/4 91/6 92/16 92/24 94/25 96/15 96/17 100/22 103/11 108/20 118/22 118/24 119/1 119/9 120/16 120/17 120/18 120/18 120/18 132/14 141/9 141/11 143/2 143/13 143/15 144/2 147/2 147/19 148/17 151/13 151/14 154/23 154/23 154/24 155/20 156/3 159/4 160/15 160/24 160/25 161/20 doctor [13] 56/10 69/2 79/11 85/21 93/18 103/1 103/7 119/4 122/16 159/15 160/24 161/12 161/20 doctors [19] 17/15 20/4 46/19 66/1 66/5 66/10 66/25 106/6 121/2 124/3 128/18 128/21 130/11 139/2 147/19 148/1 148/8 148/9 149/12 doctors' [2] 17/21 148/7 document [5] 34/6 39/15 42/5 69/18 73/4 documentation [1] 96/20 documents [1] 69/14 does [16] 56/6 56/10 59/13 84/8 97/18 103/24 103/24 118/12 118/13 118/13 118/16 130/21 130/21 148/25 153/23 160/25 doesn't [7] 38/11 69/2 86/21 110/9 119/8 120/1 149/5 doing [18] 2/13 3/16 33/14 45/17 45/17 53/4 76/25 89/6 106/9 106/10 106/11 106/13 106/18 123/10 125/13 135/24 142/19 155/21 don't [74] 14/8 16/11 16/12 16/15 20/1 20/12 36/6 36/24 37/2 37/2 37/4 37/10 39/2 41/18 42/20 43/3 43/16 44/17 50/14 50/21 50/22 52/2 55/2	59/17 61/21 66/10 67/2 67/5 68/1 68/25 69/1 72/10 74/8 74/10 79/14 84/1 84/25 85/6 86/1 86/3 90/21 93/22 95/21 95/24 96/9 98/9 99/16 104/13 104/13 106/15 108/5 109/11 110/10 112/21 116/14 121/25 131/21 132/16 133/12 135/13 141/14 142/14 142/16 142/24 144/19 144/24 147/4 147/13 147/16 148/6 150/19 152/13 157/25 159/5 donate [1] 24/11 donated [1] 23/13 done [26] 6/19 32/6 34/1 83/3 84/7 84/19 87/8 88/20 95/1 95/2 95/25 96/8 100/23 103/13 105/24 109/18 127/11 134/13 142/24 143/17 144/14 154/16 154/18 155/3 156/17 156/24 donor [2] 23/25 83/19 donors [3] 23/7 24/3 83/23 doomed [1] 130/15 door [6] 12/7 80/24 90/3 102/19 135/23 138/14 Dormandy [2] 17/7 136/13 dosage [2] 25/19 29/6 dose [5] 39/10 49/4 49/5 127/14 153/6 doses [2] 126/21 126/24 doubled [1] 50/10 doubt [8] 23/18 26/3 35/6 35/11 121/15 144/19 152/15 159/18 doubts [1] 40/22 down [15] 10/14 21/7 24/20 27/17 35/18 43/7 63/15 81/3 99/3 102/21 122/15 134/22 146/25 150/20 152/12 downsides [1] 31/18 Dr [110] 3/4 5/16 6/4 8/7 9/2 9/14 9/20 11/6 12/9 12/13 12/16 13/19 18/4 19/1 21/21 22/9 24/16 26/5 26/8 26/11 30/7 33/22 35/19 35/24 36/1 36/4 37/17 38/14 38/17 42/10 42/13 45/19 46/24 53/18 58/18	59/5 60/5 68/2 70/2 70/7 72/25 73/6 73/20 73/24 73/24 74/13 74/21 80/2 80/4 80/16 80/17 81/15 82/6 82/8 84/21 84/23 85/7 85/7 85/15 85/19 85/21 86/16 86/17 86/25 87/1 87/7 87/24 88/2 89/6 90/15 91/3 91/7 95/19 95/22 96/9 97/9 97/24 98/19 100/2 100/9 100/24 106/5 107/22 108/23 112/17 116/3 117/3 127/7 130/18 130/20 134/15 134/23 135/1 135/8 136/2 136/21 137/1 143/7 144/2 144/8 144/10 144/15 144/17 144/25 146/2 146/3 146/9 151/2 153/4 155/10 Dr Alan [1] 9/2 Dr Ball [1] 112/17 Dr Cash [6] 35/19 36/4 37/17 38/14 38/17 107/22 Dr Chalmers [2] 91/3 144/25 Dr Craske [6] 70/7 72/25 73/6 73/20 73/24 74/21 Dr Crawford [2] 22/9 24/16 Dr Elizabeth Mayne [1] 136/2 Dr Follett [12] 82/8 84/23 85/7 85/19 86/16 86/17 87/7 90/15 95/19 95/22 96/9 144/2 Dr Forbes [1] 98/19 Dr Gibson [8] 8/7 9/20 19/1 86/25 87/1 134/15 137/1 144/17 Dr Hann [1] 36/1 Dr John [1] 30/7 Dr Jones' [2] 58/18 59/5 Dr Kernoff [5] 3/4 53/18 68/2 151/2 153/4 Dr Liesner [3] 26/11 116/3 127/7 Dr Logan [1] 134/23 Dr Lowe [2] 144/8 144/15 Dr Ludlam [2] 35/24 70/2 Dr Markova [3] 97/9 100/9 143/7	Dr Peter [1] 106/5 Dr Pettigrew [24] 11/6 12/9 33/22 42/10 42/13 45/19 46/24 60/5 74/13 80/2 80/4 80/16 82/6 85/7 85/21 87/24 89/6 91/7 97/24 100/2 100/24 108/23 146/2 146/3 Dr Pettigrew's [6] 80/17 81/15 85/15 88/2 144/10 146/9 Dr Rizza [1] 73/24 Dr Tedder [2] 117/3 155/10 Dr Willoughby [9] 5/16 6/4 13/19 18/4 21/21 26/5 135/1 135/8 136/21 Dr Willoughby's [3] 9/14 12/13 12/16 Dr Yeoman [1] 26/8 drain [1] 126/19 dramatically [1] 139/16 draw [2] 29/12 73/25 drawing [1] 141/16 dreadful [1] 30/5 drew [1] 67/14 drive [2] 15/12 136/22 drivers [1] 122/23 drop [1] 138/18 drug [4] 41/25 62/18 63/2 125/12 due [5] 41/16 50/24 61/8 76/15 76/16 dump [1] 55/13 during [32] 1/10 3/1 3/20 5/7 12/1 13/14 23/8 27/17 28/14 28/19 29/16 43/17 49/14 49/15 61/7 68/16 77/13 77/23 78/4 80/14 92/3 108/9 109/16 109/22 110/17 111/2 111/9 128/1 132/10 143/6 149/16 156/21 duties [1] 80/6	easily [1] 61/6 east [1] 4/6 Easter [1] 102/12 easy [3] 59/17 89/22 156/3 eating [1] 98/7 EBV [1] 39/16 Edgware [1] 4/4 EDHCA [1] 111/25 Edinburgh [2] 85/11 85/14 edition [1] 59/12 editorial [1] 68/19 education [4] 45/13 68/13 123/23 125/2 educational [1] 117/21 educators [1] 123/24 effect [4] 48/10 89/6 107/24 108/3 effective [2] 105/20 108/4 effectively [5] 23/13 23/15 24/17 74/21 136/2 effects [4] 7/24 25/19 30/3 155/20 efficacy [4] 29/16 39/17 43/5 158/13 effort [5] 16/7 101/15 123/15 146/6 146/8 efforts [3] 8/11 45/24 109/20 eight [3] 29/23 86/18 144/11 either [9] 42/17 61/20 63/2 110/9 113/15 129/3 129/24 136/10 138/4 elaborate [4] 15/5 121/13 123/8 128/3 element [1] 118/21 Elizabeth [1] 136/2 else [15] 1/4 10/2 10/21 42/24 47/9 47/25 61/14 80/4 87/11 106/9 122/19 128/6 131/21 143/25 147/19 elsewhere [7] 10/10 11/4 24/11 25/22 60/3 134/21 144/23 Elstree [1] 147/11 Elstree-produced [1] 147/11 elucidate [1] 145/12 email [1] 20/6 emerge [1] 15/4 emergencies [1] 36/5 emerging [1] 36/2 emphasis [1] 61/15 emphasise [1] 93/1
----------	--	---	--	--	---

(48) discovered - emphasise

E	60/19 67/21 67/23 98/13 103/12 108/7 108/16 109/8 128/16 128/17 eradicable [1] 154/12 eradicated [2] 49/11 153/10 eradication [1] 107/23 eras [1] 65/20 especially [9] 30/18 39/15 77/13 91/18 98/2 98/6 139/5 139/6 139/17 essential [8] 14/10 20/2 47/1 81/10 82/18 83/22 84/3 116/25 essentially [7] 7/14 8/18 8/25 19/20 21/24 64/22 113/19 establish [1] 58/14 established [3] 112/9 116/9 127/5 establishment [2] 11/7 116/10 estimation [1] 154/7 et [39] 3/17 11/2 20/5 21/3 21/13 23/7 23/9 26/22 28/25 41/25 44/1 45/4 45/10 45/15 46/8 47/5 48/22 55/9 60/25 67/1 67/2 74/13 81/12 100/8 100/20 101/19 105/17 112/1 119/11 124/8 125/24 129/7 136/4 138/8 139/1 139/15 150/13 159/6 159/9 et cetera [37] 3/17 11/2 20/5 21/3 21/13 23/7 23/9 26/22 28/25 41/25 44/1 45/4 45/10 45/15 46/8 47/5 48/22 55/9 60/25 67/1 67/2 74/13 81/12 100/8 100/20 101/19 105/17 112/1 119/11 124/8 125/24 129/7 136/4 138/8 139/1 159/6 159/9 etc [1] 39/16 ethical [9] 24/24 40/22 117/15 119/17 120/3 120/4 120/6 120/23 142/15 ethical/moral [1] 24/24 ethically [1] 156/16 ethicists [1] 84/18 ethics [2] 120/5 120/20 ethos [3] 80/22 139/13 161/23	European [2] 60/17 157/6 European Union [1] 157/6 evasive [1] 54/3 even [35] 6/10 6/16 6/17 15/17 18/14 25/23 27/25 32/25 33/20 37/22 45/20 50/17 61/21 66/1 91/19 102/7 102/18 109/11 109/16 110/4 110/18 112/5 114/9 122/4 125/1 127/8 128/25 130/11 131/7 135/8 139/13 148/19 152/17 155/15 156/8 event [2] 60/13 107/17 events [1] 64/17 eventuality [1] 105/2 eventually [7] 9/8 54/15 101/17 104/7 112/7 114/9 127/21 ever [11] 12/18 18/6 37/3 43/3 91/20 92/24 102/15 131/21 147/13 148/13 156/17 every [20] 8/21 11/19 11/25 12/1 17/6 29/22 29/23 33/16 73/11 82/22 84/15 90/6 115/1 123/19 124/8 125/8 126/16 137/22 146/6 146/7 everybody [4] 37/25 104/7 126/18 148/18 everyone [8] 29/2 145/22 146/5 146/8 148/14 153/10 153/10 159/11 everything [9] 10/21 35/10 96/22 97/13 119/6 119/9 122/19 123/10 124/23 everywhere [2] 11/14 29/18 evidence [39] 27/13 32/16 36/23 41/4 47/23 48/9 48/13 49/3 55/24 56/22 57/2 58/12 62/20 64/21 65/8 66/12 75/9 77/6 80/17 81/16 84/8 90/11 95/20 96/23 101/2 101/8 106/15 106/16 107/9 124/10 125/14 126/6 127/5 127/10 146/9 147/18 161/23 162/1 162/9 exactly [9] 4/9 20/21 66/19 68/15 72/23	79/14 99/19 105/7 149/19 exaggerate [1] 61/12 example [7] 15/16 53/18 54/22 55/12 101/17 120/12 136/11 examples [1] 54/8 exams [1] 3/1 excellent [7] 12/9 33/2 44/3 44/24 104/25 138/2 159/17 except [1] 116/24 exception [1] 136/8 exceptional [1] 116/24 exceptions [1] 136/7 exchange [2] 38/13 107/21 exclusively [1] 112/2 executive [2] 123/21 138/17 exemption [1] 42/15 exist [3] 14/22 130/21 130/22 existed [4] 14/5 113/17 137/10 137/19 existential [2] 131/6 160/21 exists [2] 44/25 125/14 expand [4] 9/8 9/9 28/4 101/5 expect [13] 1/8 11/18 11/23 39/10 52/24 55/14 65/18 66/24 76/10 100/23 116/8 121/2 140/4 expectancy [1] 51/22 expected [2] 67/8 69/12 expecting [1] 152/13 expeditely [1] 87/16 experience [16] 3/12 6/10 10/10 40/13 51/3 90/21 94/9 118/25 119/3 130/2 130/5 130/7 130/7 132/25 161/2 162/5 experienced [3] 10/11 93/21 130/19 experiences [4] 5/11 30/6 157/10 157/10 experiencing [1] 62/24 experimental [1] 119/20 expert [7] 92/5 92/5 92/23 97/13 104/16 114/8 127/25 expertise [12] 9/14 10/25 11/4 60/20 61/4 104/23 115/12 117/4	117/22 121/24 130/21 148/3 experts [4] 105/17 106/2 130/1 132/9 explain [6] 43/23 55/5 78/3 79/3 84/2 84/6 explained [7] 12/20 21/1 31/18 89/7 104/15 119/22 143/22 explaining [1] 119/24 explains [1] 55/22 explanation [4] 55/15 119/25 119/25 120/1 explode [1] 66/7 explored [1] 96/1 exposed [2] 64/7 108/12 exposure [1] 3/18 express [1] 40/21 expressed [1] 81/19 expressing [1] 58/4 expression [1] 153/20 extensive [1] 21/4 extent [19] 5/17 21/8 21/24 28/6 31/13 48/24 50/19 53/9 53/25 55/17 72/16 80/9 83/5 93/4 105/24 114/12 151/18 151/19 157/17 external [2] 97/20 135/24 externally [1] 158/23 extra [3] 126/19 138/24 138/25 extreme [1] 101/12 extremely [24] 6/10 8/5 13/5 22/10 29/16 29/19 30/19 45/16 58/7 61/18 78/8 91/18 93/25 96/11 100/6 101/24 115/10 137/2 138/19 157/25 158/12 158/18 158/20 159/25 eye [1] 5/15 F face [2] 78/11 83/17 faced [2] 7/4 51/8 faces [1] 54/8 facilitated [2] 8/20 46/24 facilities [10] 8/10 8/11 8/12 8/23 9/22 13/4 134/5 134/6 134/25 137/3 facility [5] 9/17 12/8 44/24 79/22 123/13 fact [45] 3/14 4/2 5/20 6/15 7/11 16/3 16/17 17/5 17/23 18/10 21/20 26/4 27/8 33/10	42/13 52/14 54/7 54/11 54/20 58/23 61/10 62/14 64/3 75/6 76/14 93/20 94/12 94/13 94/15 104/13 113/1 114/11 124/6 127/5 129/24 133/15 137/22 144/14 152/2 154/6 156/9 156/16 157/14 157/24 158/14 factor [16] 4/20 22/15 25/15 29/20 38/1 38/18 39/4 39/9 41/5 42/11 70/16 109/18 109/23 110/5 126/21 134/7 Factor IX [2] 109/23 110/5 Factor VIII [11] 4/20 22/15 29/20 38/1 38/18 39/4 39/9 41/5 42/11 70/16 126/21 factors [2] 64/8 72/20 failed [1] 48/24 failing [2] 6/3 6/9 failures [1] 41/16 fair [6] 44/19 55/23 55/24 65/6 75/24 111/18 fairly [3] 32/6 71/24 127/6 faith [1] 12/9 false [3] 83/15 83/16 154/13 families [29] 26/2 27/25 29/12 31/2 43/15 52/4 58/12 77/19 77/22 78/3 78/8 80/15 87/15 87/23 89/1 93/17 96/25 99/1 99/22 100/1 100/4 100/11 101/10 104/4 137/17 143/21 155/8 155/23 161/4 family [14] 19/16 33/16 33/25 33/25 55/13 79/10 81/4 84/4 89/11 93/6 99/10 100/5 118/20 137/10 famous [1] 6/15 fantastic [1] 122/3 far [42] 9/6 16/22 22/23 23/15 25/8 28/2 31/25 32/16 35/5 38/3 38/9 39/21 40/2 41/15 44/14 48/14 60/14 60/22 62/7 65/13 65/23 71/5 76/1 82/9 86/22 89/14 94/6 103/11 105/10 108/14 108/21 112/2 115/8 119/14 125/23 136/17
----------	---	---	--	---	---

F	50/14 69/3 78/14 fine [1] 155/14 finish [1] 133/17 first [36] 2/16 2/23 9/11 13/14 19/10 32/20 36/13 37/2 37/20 37/21 41/2 44/1 49/4 59/7 60/8 61/24 63/14 80/24 80/24 84/15 85/16 86/1 88/22 93/10 94/25 99/4 109/10 109/12 111/1 135/15 135/24 141/2 148/13 152/22 153/6 160/9 five [7] 2/4 51/14 51/15 70/15 72/25 82/22 87/1 flavour [1] 13/1 focus [1] 25/10 foetal [1] 6/15 Follett [12] 82/8 84/23 85/7 85/19 86/16 86/17 87/7 90/15 95/19 95/22 96/9 144/2 follow [10] 7/20 7/22 7/24 75/20 83/4 84/8 97/18 98/10 100/14 129/5 follow-up [5] 7/20 7/22 7/24 75/20 100/14 followed [2] 49/17 146/24 following [6] 29/21 43/13 67/13 112/12 125/12 162/12 follows [1] 56/14 food [1] 102/18 foolish [1] 117/6 Forbes [2] 28/11 98/19 forefront [3] 48/21 133/5 154/22 foremost [3] 80/25 122/12 132/2 foresee [1] 150/19 forever [4] 101/11 124/7 146/23 155/15 forget [1] 61/6 forgive [1] 162/3 forgotten [2] 45/1 111/4 form [5] 11/7 58/18 83/20 85/12 97/3 formally [1] 22/8 former [1] 82/4 forth [3] 98/8 143/15 158/13 fortunate [2] 10/17 11/14	forum [2] 120/19 120/23 forward [2] 130/13 130/14 fought [2] 101/3 138/16 found [7] 5/15 46/4 50/9 51/3 57/10 66/23 77/19 four [5] 4/19 12/1 88/4 92/15 112/12 four-year old [1] 92/15 fourth [1] 69/21 fraternities [1] 132/6 fraternity [1] 152/11 Free [19] 2/6 2/8 2/17 2/20 11/15 17/4 17/25 20/22 20/23 25/21 45/22 57/7 68/1 68/8 68/11 116/6 136/13 137/21 151/1 freedom [1] 103/13 freezers [1] 138/25 frequency [3] 38/21 39/14 49/22 frequent [3] 12/5 35/1 88/17 frequently [2] 51/20 80/12 fresh [6] 110/4 110/18 112/3 124/15 157/16 157/17 Friday [1] 90/5 fridges [1] 138/25 frighten [3] 89/20 102/7 120/1 frightening [6] 30/4 61/18 72/22 91/18 93/13 93/18 from [140] 1/6 1/23 3/14 4/15 7/12 8/23 10/7 11/4 13/10 13/16 13/25 18/3 18/20 19/8 19/21 20/21 21/15 21/21 22/14 22/16 25/1 25/13 25/25 26/7 27/9 28/11 37/20 38/16 38/20 39/10 40/25 41/6 41/25 42/10 42/12 43/10 45/24 48/13 49/6 49/20 50/2 51/9 52/16 53/17 53/18 53/18 53/19 57/1 57/14 58/22 59/18 60/20 62/6 66/2 66/15 67/4 67/11 69/22 70/12 73/6 73/24 74/18 75/14 77/9 78/15 78/24 80/2 80/4 82/6 82/7 84/8 85/7 85/11	85/19 85/20 85/21 86/2 86/10 86/16 86/17 86/22 89/14 90/11 94/21 96/8 98/2 98/19 99/7 100/4 100/19 100/22 101/1 106/1 106/2 107/7 109/24 111/17 114/1 114/8 114/11 114/11 116/10 116/11 118/4 118/17 125/4 127/6 127/11 128/22 129/6 129/11 130/1 131/20 131/24 133/15 133/19 134/14 135/10 140/8 141/17 141/19 144/1 144/22 145/4 145/6 145/8 147/6 147/24 151/1 151/20 154/25 156/4 157/10 158/1 158/1 159/3 159/15 159/24 161/9 162/4 from May [2] 85/20 86/10 front [2] 46/18 144/24 fronts [1] 7/4 frozen [6] 109/1 110/4 110/18 112/3 122/8 124/15 fruit [1] 131/24 fulfil [1] 14/2 fulfilled [1] 50/15 full [6] 22/12 41/24 55/14 80/25 127/18 143/18 fully [8] 2/23 7/1 9/17 10/17 40/15 42/1 91/19 95/5 function [4] 50/9 106/19 121/12 142/11 fund [5] 7/13 8/24 9/4 9/6 127/16 fund-raising [2] 8/24 9/6 fundamental [1] 129/20 fundamentally [1] 128/14 funding [4] 9/5 47/2 47/10 132/2 funds [2] 99/8 100/20 furrow [2] 5/18 82/18 further [12] 35/18 42/5 46/7 63/19 87/18 96/7 132/14 133/12 133/19 134/2 152/18 160/7 futile [1] 121/3 future [1] 96/22	141/22 gap [3] 3/14 111/16 155/19 gaps [2] 7/8 10/13 gastro [1] 107/4 gave [9] 21/9 26/12 66/2 78/22 88/25 109/4 117/14 120/22 124/23 gay [1] 61/16 gay-related [1] 61/16 general [18] 2/13 3/23 9/13 10/15 13/25 18/2 20/8 66/25 67/7 67/8 69/7 91/11 101/20 102/2 117/10 124/3 136/24 148/10 generally [3] 37/1 66/11 149/12 generated [1] 40/24 generic [1] 145/24 generous [2] 13/6 13/9 genuinely [1] 128/6 Germany [1] 127/11 get [34] 7/6 9/5 14/18 18/14 27/17 29/19 42/25 47/5 54/15 54/19 81/5 81/6 81/9 86/1 97/13 101/12 101/14 101/16 101/18 103/3 110/6 126/23 127/16 131/18 132/10 134/16 135/22 136/25 137/1 146/8 146/17 152/17 153/3 157/23 gets [1] 44/25 getting [10] 18/10 20/4 41/8 45/3 46/14 89/20 109/18 124/8 137/3 162/4 Gibson [8] 8/7 9/20 19/1 86/25 87/1 134/15 137/1 144/17 Gillett [1] 120/8 give [27] 1/21 15/15 22/11 23/2 24/23 29/21 44/2 44/5 46/22 47/24 49/5 49/13 54/7 54/24 78/10 98/11 98/13 98/14 99/12 107/8 120/10 120/12 129/4 133/11 133/14 144/15 153/7 given [17] 43/12 47/23 48/13 63/19 71/22 79/5 90/11 93/13 93/15 94/2 94/4 101/8 112/19 136/20 141/3 161/8 161/15 gives [1] 61/15 giving [7] 29/4 31/16	43/3 45/12 45/14 77/3 78/18 glands [1] 64/12 Glasgow [7] 3/11 14/19 35/15 112/7 118/5 144/7 146/12 glitch [1] 72/7 go [30] 15/19 22/14 35/16 39/12 42/7 54/23 54/24 55/3 57/18 63/4 63/13 63/21 64/5 69/21 70/3 71/1 79/19 83/19 90/24 94/14 95/17 100/17 108/21 126/8 126/10 140/25 146/5 149/24 151/16 155/8 god [1] 128/19 godsend [1] 137/2 goes [5] 64/11 70/19 145/11 148/20 156/4 going [45] 1/21 5/9 16/3 16/23 17/18 27/8 28/8 37/22 45/22 47/18 56/9 59/1 62/5 72/21 75/11 76/7 78/21 79/20 83/10 89/19 90/24 95/7 128/11 131/1 131/4 131/21 132/14 132/15 134/4 144/1 149/23 150/17 151/3 151/4 151/21 152/6 152/8 153/6 153/8 153/11 154/9 154/11 155/9 155/10 160/13 gold [1] 114/22 gone [2] 21/3 150/18 good [33] 1/18 7/3 10/19 42/2 43/4 45/17 59/21 80/9 97/5 97/25 100/6 101/6 102/21 102/23 103/22 104/6 104/7 109/15 120/4 121/8 128/7 128/8 133/2 133/3 137/3 139/12 139/14 143/20 147/14 158/6 158/15 160/4 160/19 Goodness [1] 84/24 Gordon [2] 35/13 107/7 Gordon Lowe [2] 35/13 107/7 Gosh [1] 109/25 got [12] 61/22 76/3 81/23 81/24 95/21 102/5 102/17 104/20 122/1 133/8 155/2 155/4 governance [7] 61/1 123/17 125/19 128/9
far... [6] 143/17 144/9 144/17 148/20 150/21 160/2 fashion [1] 141/7 fashioned [1] 6/10 fast [4] 15/22 29/19 55/6 55/7 fatal [3] 77/4 150/12 150/14 father [1] 89/11 fault [2] 59/4 81/6 favour [1] 42/23 fear [1] 122/12 fears [1] 109/19 feasible [1] 27/5 features [1] 34/20 February [2] 34/16 36/10 February '84 [1] 36/10 fed [2] 139/24 141/15 Federation [6] 44/8 47/3 52/18 79/19 148/12 148/25 feel [2] 54/9 156/15 feeling [1] 30/5 fell [1] 51/1 fellow [2] 7/10 14/1 felt [4] 13/3 24/8 25/22 62/3 few [27] 3/9 3/21 7/8 8/2 22/1 24/15 32/1 32/8 32/8 34/10 43/16 51/4 58/10 64/8 78/22 88/4 93/17 108/17 108/21 109/25 112/22 112/25 128/12 136/12 141/16 150/10 156/20 fiefdom [1] 122/19 fiefdoms [1] 121/12 field [1] 141/19 fight [3] 126/11 135/12 139/9 fighting [4] 19/3 22/6 139/11 139/12 filed [1] 96/18 filing [1] 96/13 fill [1] 111/16 final [10] 2/25 61/22 64/13 88/19 93/7 131/25 132/16 147/17 159/14 160/22 finally [4] 30/2 119/8 125/15 156/19 financial [1] 32/15 financing [1] 99/6 find [4] 9/15 13/7 59/17 159/19 finding [3] 50/4 77/14 127/22 findings [4] 50/6	fine [1] 155/14 finish [1] 133/17 first [36] 2/16 2/23 9/11 13/14 19/10 32/20 36/13 37/2 37/20 37/21 41/2 44/1 49/4 59/7 60/8 61/24 63/14 80/24 80/24 84/15 85/16 86/1 88/22 93/10 94/25 99/4 109/10 109/12 111/1 135/15 135/24 141/2 148/13 152/22 153/6 160/9 five [7] 2/4 51/14 51/15 70/15 72/25 82/22 87/1 flavour [1] 13/1 focus [1] 25/10 foetal [1] 6/15 Follett [12] 82/8 84/23 85/7 85/19 86/16 86/17 87/7 90/15 95/19 95/22 96/9 144/2 follow [10] 7/20 7/22 7/24 75/20 83/4 84/8 97/18 98/10 100/14 129/5 follow-up [5] 7/20 7/22 7/24 75/20 100/14 followed [2] 49/17 146/24 following [6] 29/21 43/13 67/13 112/12 125/12 162/12 follows [1] 56/14 food [1] 102/18 foolish [1] 117/6 Forbes [2] 28/11 98/19 forefront [3] 48/21 133/5 154/22 foremost [3] 80/25 122/12 132/2 foresee [1] 150/19 forever [4] 101/11 124/7 146/23 155/15 forget [1] 61/6 forgive [1] 162/3 forgotten [2] 45/1 111/4 form [5] 11/7 58/18 83/20 85/12 97/3 formally [1] 22/8 former [1] 82/4 forth [3] 98/8 143/15 158/13 fortunate [2] 10/17 11/14	forum [2] 120/19 120/23 forward [2] 130/13 130/14 fought [2] 101/3 138/16 found [7] 5/15 46/4 50/9 51/3 57/10 66/23 77/19 four [5] 4/19 12/1 88/4 92/15 112/12 four-year old [1] 92/15 fourth [1] 69/21 fraternities [1] 132/6 fraternity [1] 152/11 Free [19] 2/6 2/8 2/17 2/20 11/15 17/4 17/25 20/22 20/23 25/21 45/22 57/7 68/1 68/8 68/11 116/6 136/13 137/21 151/1 freedom [1] 103/13 freezers [1] 138/25 frequency [3] 38/21 39/14 49/22 frequent [3] 12/5 35/1 88/17 frequently [2] 51/20 80/12 fresh [6] 110/4 110/18 112/3 124/15 157/16 157/17 Friday [1] 90/5 fridges [1] 138/25 frighten [3] 89/20 102/7 120/1 frightening [6] 30/4 61/18 72/22 91/18 93/13 93/18 from [140] 1/6 1/23 3/14 4/15 7/12 8/23 10/7 11/4 13/10 13/16 13/25 18/3 18/20 19/8 19/21 20/21 21/15 21/21 22/14 22/16 25/1 25/13 25/25 26/7 27/9 28/11 37/20 38/16 38/20 39/10 40/25 41/6 41/25 42/10 42/12 43/10 45/24 48/13 49/6 49/20 50/2 51/9 52/16 53/17 53/18 53/18 53/19 57/1 57/14 58/22 59/18 60/20 62/6 66/2 66/15 67/4 67/11 69/22 70/12 73/6 73/24 74/18 75/14 77/9 78/15 78/24 80/2 80/4 82/6 82/7 84/8 85/7 85/11	85/19 85/20 85/21 86/2 86/10 86/16 86/17 86/22 89/14 90/11 94/21 96/8 98/2 98/19 99/7 100/4 100/19 100/22 101/1 106/1 106/2 107/7 109/24 111/17 114/1 114/8 114/11 114/11 116/10 116/11 118/4 118/17 125/4 127/6 127/11 128/22 129/6 129/11 130/1 131/20 131/24 133/15 133/19 134/14 135/10 140/8 141/17 141/19 144/1 144/22 145/4 145/6 145/8 147/6 147/24 151/1 151/20 154/25 156/4 157/10 158/1 158/1 159/3 159/15 159/24 161/9 162/4 from May [2] 85/20 86/10 front [2] 46/18 144/24 fronts [1] 7/4 frozen [6] 109/1 110/4 110/18 112/3 122/8 124/15 fruit [1] 131/24 fulfil [1] 14/2 fulfilled [1] 50/15 full [6] 22/12 41/24 55/14 80/25 127/18 143/18 fully [8] 2/23 7/1 9/17 10/17 40/15 42/1 91/19 95/5 function [4] 50/9 106/19 121/12 142/11 fund [5] 7/13 8/24 9/4 9/6 127/16 fund-raising [2] 8/24 9/6 fundamental [1] 129/20 fundamentally [1] 128/14 funding [4] 9/5 47/2 47/10 132/2 funds [2] 99/8 100/20 furrow [2] 5/18 82/18 further [12] 35/18 42/5 46/7 63/19 87/18 96/7 132/14 133/12 133/19 134/2 152/18 160/7 futile [1] 121/3 future [1] 96/22	141/22 gap [3] 3/14 111/16 155/19 gaps [2] 7/8 10/13 gastro [1] 107/4 gave [9] 21/9 26/12 66/2 78/22 88/25 109/4 117/14 120/22 124/23 gay [1] 61/16 gay-related [1] 61/16 general [18] 2/13 3/23 9/13 10/15 13/25 18/2 20/8 66/25 67/7 67/8 69/7 91/11 101/20 102/2 117/10 124/3 136/24 148/10 generally [3] 37/1 66/11 149/12 generated [1] 40/24 generic [1] 145/24 generous [2] 13/6 13/9 genuinely [1] 128/6 Germany [1] 127/11 get [34] 7/6 9/5 14/18 18/14 27/17 29/19 42/25 47/5 54/15 54/19 81/5 81/6 81/9 86/1 97/13 101/12 101/14 101/16 101/18 103/3 110/6 126/23 127/16 131/18 132/10 134/16 135/22 136/25 137/1 146/8 146/17 152/17 153/3 157/23 gets [1] 44/25 getting [10] 18/10 20/4 41/8 45/3 46/14 89/20 109/18 124/8 137/3 162/4 Gibson [8] 8/7 9/20 19/1 86/25 87/1 134/15 137/1 144/17 Gillett [1] 120/8 give [27] 1/21 15/15 22/11 23/2 24/23 29/21 44/2 44/5 46/22 47/24 49/5 49/13 54/7 54/24 78/10 98/11 98/13 98/14 99/12 107/8 120/10 120/12 129/4 133/11 133/14 144/15 153/7 given [17] 43/12 47/23 48/13 63/19 71/22 79/5 90/11 93/13 93/15 94/2 94/4 101/8 112/19 136/20 141/3 161/8 161/15 gives [1] 61/15 giving [7] 29/4 31/16	43/3 45/12 45/14 77/3 78/18 glands [1] 64/12 Glasgow [7] 3/11 14/19 35/15 112/7 118/5 144/7 146/12 glitch [1] 72/7 go [30] 15/19 22/14 35/16 39/12 42/7 54/23 54/24 55/3 57/18 63/4 63/13 63/21 64/5 69/21 70/3 71/1 79/19 83/19 90/24 94/14 95/17 100/17 108/21 126/8 126/10 140/25 146/5 149/24 151/16 155/8 god [1] 128/19 godsend [1] 137/2 goes [5] 64/11 70/19 145/11 148/20 156/4 going [45] 1/21 5/9 16/3 16/23 17/18 27/8 28/8 37/22 45/22 47/18 56/9 59/1 62/5 72/21 75/11 76/7 78/21 79/20 83/10 89/19 90/24 95/7 128/11 131/1 131/4 131/21 132/14 132/15 134/4 144/1 149/23 150/17 151/3 151/4 151/21 152/6 152/8 153/6 153/8 153/11 154/9 154/11 155/9 155/10 160/13 gold [1] 114/22 gone [2] 21/3 150/18 good [33] 1/18 7/3 10/19 42/2 43/4 45/17 59/21 80/9 97/5 97/25 100/6 101/6 102/21 102/23 103/22 104/6 104/7 109/15 120/4 121/8 128/7 128/8 133/2 133/3 137/3 139/12 139/14 143/20 147/14 158/6 158/15 160/4 160/19 Goodness [1] 84/24 Gordon [2] 35/13 107/7 Gordon Lowe [2] 35/13 107/7 Gosh [1] 109/25 got [12] 61/22 76/3 81/23 81/24 95/21 102/5 102/17 104/20 122/1 133/8 155/2 155/4 governance [7] 61/1 123/17 125/19 128/9
G		Gallo [2] 141/21			

G	H				
governance... [3] 158/8 159/17 159/25	had [233]	66/17 67/11 70/14	157/20	held [5] 18/14 60/12	160/13
government [2] 102/5	hadn't [1] 82/8	72/4 72/15	hats [1] 65/19	146/1 157/14 161/13	herself [1] 33/24
132/3	haemarthrosis [2]	haemorrhage [1]	have [250]	help [7] 30/17 98/11	Hey [3] 1/25 30/7
governmental [1]	11/23 29/22	28/21	haven't [3] 27/13 62/6	98/13 129/25 135/5	136/9
129/3	haematologist [4]	haemostasis [2] 3/19	132/13	144/9 147/4	HHV8 [1] 76/16
gram [1] 124/5	4/14 4/15 4/25 65/18	109/13	having [26] 12/2 23/9	helped [3] 101/16	hide [1] 78/17
grandfather [1] 157/7	haematologists [3]	haemovigilance [2]	24/6 32/24 33/1 42/11	106/17 130/23	high [12] 20/9 24/4
grant [1] 98/22	65/13 65/17 124/2	123/17 123/19	46/13 50/14 52/12	helpful [3] 22/10	45/3 60/23 63/7 64/19
graphic [1] 161/15	haematology [14]	Haitian [1] 63/2	67/10 80/1 93/16	35/14 35/14	72/18 72/19 111/6
grateful [2] 128/5	2/15 2/24 2/25 7/6	half [12] 4/17 30/2	98/21 100/1 100/10	Hendra [1] 131/23	119/21 127/14 136/20
162/7	9/14 14/11 35/7 47/3	43/20 48/2 63/9 68/9	102/19 109/17 118/3	hep [3] 39/16 39/16	high-risk [2] 45/3
great [66] 2/5 2/16	47/7 67/7 68/14	75/10 75/13 107/12	126/3 141/15 144/21	150/25	64/19
4/11 4/14 5/16 6/19	135/16 148/13 156/23	111/1 127/3 135/20	156/21 156/24 159/15	hepatitis [61] 23/21	higher [2] 24/13
8/9 9/25 10/18 10/22	haematopoiesis [1]	half-an-hour [1] 48/2	159/15 162/3	23/22 23/23 40/17	140/10
10/25 12/9 13/20 15/2	3/6	hall [1] 138/9	HCDO0000517 [1]	40/18 44/23 45/20	him [10] 9/4 12/19
15/25 19/16 20/7	haemoglobin [1]	hall-type [1] 138/9	73/7	45/24 48/9 48/14	18/7 33/3 38/17 68/6
20/22 24/21 32/7	124/5	hampered [1] 63/18	he [34] 5/17 6/4 12/20	48/17 48/20 48/21	99/20 103/5 151/2
33/22 38/22 49/14	haemolysed [1] 55/10	Hampstead [1]	12/20 12/23 12/23	49/5 49/6 49/18 50/11	153/5
51/24 91/24 99/16	haemophilia [114] 2/4	136/15	13/2 13/3 18/8 18/10	50/17 50/22 51/2 51/5	himself [1] 5/21
100/17 103/19 104/5	5/23 7/19 7/23 8/12	handed [1] 18/10	18/16 22/10 22/11	53/14 53/20 55/8	hindsight [2] 84/18
104/23 105/1 106/4	8/14 8/18 9/22 10/2	handful [1] 43/17	24/17 24/17 25/2 26/6	55/19 55/20 56/1	89/24
106/25 107/2 110/20	11/10 11/10 11/11	hands [2] 119/3	26/10 33/3 57/11 76/3	56/18 57/6 57/22 59/2	Hippocratic [1] 94/23
111/1 112/11 112/15	11/13 11/18 11/21	130/17	86/2 95/23 99/19	59/10 59/14 61/8	his [6] 5/18 26/6
112/25 113/7 113/21	16/9 16/24 17/8 17/23	hands-on [2] 119/3	103/2 103/9 103/10	73/14 103/23 107/25	95/23 97/6 136/22
114/5 114/7 115/21	20/18 21/10 27/19	130/17	103/11 103/11 107/8	108/3 108/7 108/12	141/23
115/22 116/2 116/24	28/20 28/22 30/14	hanging [1] 56/8	135/9 135/11 142/5	114/3 114/5 114/9	history [7] 20/18 29/1
117/2 117/4 117/11	30/23 34/16 34/21	HANN [20] 1/16 1/18	153/21	115/5 115/14 116/12	75/7 75/17 76/23
119/3 119/5 121/7	36/3 36/17 38/6 39/23	12/11 25/10 34/7 36/1	he'd [1] 76/3	117/5 128/25 129/13	130/15 154/24
122/2 122/4 123/15	44/6 44/9 47/4 47/10	48/8 66/11 74/7 90/10	He's [1] 48/1	131/14 140/9 147/9	hit [1] 75/11
123/16 124/20 125/17	47/13 52/17 52/18	95/17 117/10 126/10	head [5] 18/23 28/23	150/10 150/16 150/25	HIV [27] 25/18 25/18
129/14 135/19 137/24	56/11 61/21 65/5	133/8 133/18 134/2	29/1 29/21 109/9	152/1 153/1 153/7	29/18 40/5 40/13
138/13 146/22 151/25	65/20 65/21 66/5	147/17 149/4 160/7	headed [1] 98/20	153/9 154/12 154/23	51/21 61/14 75/15
159/3	66/10 66/25 67/5 67/6	163/2	heading [1] 38/18	hepatitis B [8] 23/22	76/21 77/10 77/12
Great Ormond [1]	68/21 69/2 69/6 69/10	happen [8] 8/22 28/2	health [26] 9/4 10/9	23/23 44/23 48/14	77/20 83/15 109/21
122/2	69/23 71/21 72/13	37/14 59/15 83/25	15/9 15/22 16/17	59/10 103/23 150/16	112/22 115/14 116/13
greater [3] 49/23	73/12 76/8 76/10	107/4 150/2 153/5	24/10 35/3 35/10	153/1	117/4 142/10 142/19
153/24 156/9	76/12 76/14 76/22	happened [18] 12/22	41/17 84/5 94/13	hepatitis C [17] 40/17	144/22 145/4 147/8
greatly [2] 126/25	77/2 77/19 77/20	14/9 44/19 47/1 48/19	103/1 103/6 103/7	40/18 49/6 49/18 51/2	150/2 150/20 152/14
155/18	77/22 79/1 79/17	94/3 94/4 96/17 101/7	103/7 129/23 130/1	55/19 108/3 108/7	153/20
grew [2] 101/13	82/10 84/13 97/10	102/15 106/16 111/15	130/2 130/3 130/4	114/3 114/5 115/5	hoc [2] 79/23 138/4
125/15	97/22 97/24 98/20	113/3 128/11 141/7	130/11 135/1 135/2	115/14 116/12 117/5	hold [1] 32/13
GRID [1] 61/15	98/22 99/1 99/7 99/21	150/1 159/10 159/20	135/6 147/3 158/21	128/25 154/12 154/23	holes [1] 124/25
grief [1] 139/6	101/15 102/2 102/16	happy [1] 27/5	hear [1] 1/19	hepatitis E [1] 131/14	home [25] 13/20
grievance [1] 139/6	107/14 109/21 110/2	hard [6] 8/17 12/3	heard [9] 22/8 24/7	hepatologist [2]	22/25 25/24 29/9
ground [1] 120/5	111/22 112/4 113/15	116/3 135/12 137/20	27/12 75/22 82/6 86/7	106/4 107/3	30/11 30/12 30/16
group [4] 127/25	113/16 113/23 114/18	139/10	94/21 102/18 160/23	hepatologists [1]	33/6 33/7 33/14 35/3
141/21 146/3 146/4	115/15 117/7 119/14	Hardisty [1] 112/16	103/7 129/23 130/1	107/6	35/10 46/19 103/5
groups [12] 35/9	128/20 135/20 136/3	harking [1] 154/2	130/2 130/3 130/4	hepatology [9] 10/5	103/7 103/21 108/25
36/18 52/22 52/22	137/18 143/13 143/17	harm [5] 94/25 95/1	130/11 135/1 135/2	11/2 50/20 50/21	109/5 111/10 112/6
64/19 79/8 79/9 122/8	143/21 147/23 149/12	160/25 160/25 161/5	135/6 147/3 158/21	106/2 106/20 106/22	135/2 138/1 140/19
122/9 138/4 145/22	152/11 154/8 156/24	has [29] 35/19 40/23	hear [1] 1/19	107/1 113/20	141/5 147/25
146/1	159/15 159/17 159/24	63/7 84/15 84/16	heard [9] 22/8 24/7	hepatopathy [1]	home therapy [1]
guarantee [3] 22/12	160/17 161/12	84/17 92/18 93/11	27/12 75/22 82/6 86/7	49/18	22/25
38/21 41/24	haemophilia A [3]	93/13 116/1 118/14	94/21 102/18 160/23	her [8] 33/22 33/23	homosexual [2] 62/17
guidance [2] 128/2	11/10 36/3 107/14	125/3 125/8 125/21	110/23 149/11 151/4	69/1 82/6 85/8 89/10	63/1
129/15	haemophilia B [3]	125/23 127/11 129/3	heat treatment [1]	139/16 143/11	honest [10] 7/3 34/2
guidelines [1] 20/13	11/11 109/21 110/2	129/4 130/8 130/16	149/11	here [18] 5/4 34/23	48/18 88/9 99/17
guru [1] 50/20	haemophiliac [1] 73/1	130/17 131/3 131/19	heat-treated [13] 37/6	35/19 36/15 36/24	110/11 135/11 139/22
	haemophiliacs [5]	131/23 157/11 158/2	37/8 38/18 41/5 42/6	42/9 71/22 74/20	150/20 157/19
		158/11 158/19 159/13	42/11 42/16 42/19	87/12 99/11 118/21	honestly [4] 100/18
		hasn't [1] 150/18	42/25 107/11 107/13	124/2 157/9 158/4	110/2 120/2 135/13
		hate [2] 129/23	107/18 110/23	158/6 159/18 159/22	honesty [1] 80/25

(51) governance... - honesty

H	157/22 157/22 hope [13] 21/22 55/22 65/1 74/9 92/10 100/18 129/17 133/4 150/7 151/18 154/13 158/16 160/19 hoped [3] 52/9 88/14 133/2 hopeful [1] 38/11 hopefully [1] 11/24 horrific [1] 54/20 hospital [19] 1/25 2/1 3/10 8/16 13/17 14/1 33/7 46/8 47/14 97/21 102/10 102/14 114/14 123/19 123/20 125/6 125/8 136/15 138/14 hospitals [3] 14/9 107/6 123/24 host [3] 60/12 60/24 64/9 hot [1] 67/4 hour [3] 29/24 48/2 95/10 hours [6] 13/10 13/13 13/22 29/23 29/23 107/18 house [2] 1/22 2/14 how [60] 3/11 7/2 11/8 12/20 14/8 15/22 20/19 24/7 29/3 33/15 39/17 40/9 43/10 43/16 45/2 54/5 56/6 57/20 64/17 66/14 66/15 67/2 75/8 75/19 75/19 75/20 78/17 79/15 79/24 81/8 81/8 81/8 81/9 88/7 91/9 92/16 94/3 94/3 94/6 113/8 121/15 128/3 132/17 137/6 139/1 139/3 139/3 139/19 140/18 141/13 143/15 143/16 143/16 147/2 154/8 154/9 154/10 154/23 154/24 159/4 however [2] 1/7 36/2 HTLV [12] 82/5 87/2 89/10 98/21 99/2 99/5 107/23 141/21 142/1 142/3 142/6 144/2 HTLV-I [1] 141/21 HTLV-III [8] 82/5 87/2 89/10 98/21 99/2 99/5 107/23 144/2 hub [1] 119/9 huge [5] 97/16 102/3 126/18 133/13 161/16 human [1] 131/22 humanity [1] 131/7 hundreds [3] 93/8	hung [1] 52/5 hypotheses [3] 64/1 86/11 86/12 I I actually [3] 17/10 26/1 97/7 I adopted [1] 11/16 I agree [1] 56/23 I also [2] 3/20 26/16 I always [3] 45/4 115/11 146/21 I am [5] 27/5 56/9 111/15 154/1 162/7 I and [1] 25/20 I arrived [1] 13/7 I asked [1] 97/11 I at [1] 43/14 I attended [1] 61/5 I basically [1] 47/8 I began [1] 46/17 I believe [4] 21/1 26/23 128/17 145/25 I believed [1] 100/9 I call [2] 43/13 159/8 I came [3] 46/4 135/3 136/22 I can [21] 15/15 23/2 25/7 28/3 28/9 29/8 30/12 32/20 39/2 54/24 56/9 84/2 84/6 107/19 111/18 123/23 133/17 135/9 144/12 154/21 161/12 I can't [22] 4/9 22/12 32/24 57/13 68/10 68/15 74/16 78/5 80/10 86/10 86/19 94/17 97/6 102/14 105/6 105/22 107/16 108/2 126/24 140/12 143/25 156/17 I cannot [1] 38/21 I caused [1] 161/5 I certainly [6] 34/25 92/9 104/13 115/13 142/25 151/16 I consent [1] 83/21 I constantly [1] 103/20 I contacted [2] 22/9 37/17 I could [9] 8/15 8/21 21/10 24/5 26/4 85/25 86/15 96/4 101/10 I couldn't [2] 6/11 136/25 I dealt [1] 159/2 I did [20] 8/17 17/3 17/9 42/1 46/10 52/12 52/25 59/1 68/25 78/4	82/24 82/25 91/23 97/13 137/1 139/25 140/22 141/1 141/24 142/19 I didn't [20] 6/25 7/1 9/16 23/6 26/15 26/17 32/12 32/13 34/2 34/3 42/23 48/18 81/3 82/17 95/25 113/12 115/11 140/21 142/4 155/18 I discussed [1] 25/21 I do [4] 39/13 59/20 119/1 160/15 I don't [51] 14/8 16/11 16/15 20/1 36/6 37/2 37/2 37/4 37/10 39/2 41/18 42/20 43/3 43/16 44/17 50/14 52/2 55/2 59/17 61/21 66/10 67/2 68/1 68/25 74/8 74/10 84/1 84/25 86/1 86/3 95/24 99/16 104/13 106/15 108/5 110/10 112/21 116/14 121/25 131/21 133/12 141/14 142/14 142/16 142/24 144/19 147/13 147/16 148/6 150/19 152/13 I doubt [2] 35/6 35/11 I encouraged [1] 143/9 I ended [1] 102/12 I even [1] 102/18 I expect [4] 52/24 65/18 76/10 100/23 I experienced [1] 10/11 I explain [1] 55/5 I failed [1] 48/24 I felt [1] 24/8 I first [1] 9/11 I fought [1] 138/16 I found [3] 5/15 46/4 57/10 I fully [1] 95/5 I gave [1] 21/9 I get [1] 157/23 I give [2] 54/7 120/12 I got [1] 122/1 I greatly [1] 155/18 I grew [1] 125/15 I had [45] 2/24 3/21 5/1 5/16 5/22 9/3 9/6 9/19 10/8 10/19 10/19 10/22 10/23 11/3 12/3 12/8 13/8 13/14 14/16 21/20 22/2 22/7 26/20 30/6 30/14 31/8 46/23 61/2 82/16 86/15 97/8 99/17 99/20 100/22	100/23 102/24 104/17 106/8 118/25 137/4 137/14 137/19 139/9 141/1 141/22 I happen [1] 107/4 I have [19] 17/16 40/6 53/9 58/5 71/10 71/16 71/19 78/16 82/13 90/12 102/20 117/10 133/8 139/22 140/6 157/18 160/6 160/12 160/13 I haven't [1] 27/13 I helped [1] 101/16 I honestly [2] 100/18 110/2 I hope [9] 21/22 55/22 65/1 74/9 92/10 100/18 133/4 151/18 158/16 I hoped [1] 52/9 I immediately [1] 58/24 I just [8] 23/7 40/11 42/5 94/22 132/23 140/12 144/25 161/4 I knew [12] 18/7 24/8 51/11 71/17 78/14 83/4 87/9 104/18 105/11 106/4 106/5 141/23 I know [12] 20/25 28/2 40/16 56/21 57/9 101/25 120/13 135/3 145/2 146/3 147/12 157/8 I learned [1] 24/10 I leave [1] 56/13 I left [3] 15/17 96/19 96/22 I looked [1] 93/8 I made [2] 43/14 52/25 I managed [1] 61/6 I may [2] 25/9 141/25 I mean [21] 15/8 20/17 22/4 22/5 31/8 33/19 41/12 67/5 67/6 75/1 76/15 77/7 78/13 82/12 89/20 91/25 139/22 148/23 157/2 157/17 157/20 I met [1] 111/9 I might [4] 25/9 95/17 103/13 133/19 I moved [1] 118/16 I need [1] 23/19 I needed [2] 37/20 37/21 I never [2] 145/1 145/3 I not [1] 154/24	I note [1] 47/19 I noticed [1] 137/17 I obviously [1] 147/12 I only [2] 12/18 61/9 I ordered [2] 46/15 46/16 I possibly [1] 97/13 I prefer [1] 77/5 I presume [1] 36/15 I probably [2] 33/23 147/22 I put [2] 19/6 145/13 I read [1] 144/9 I really [6] 16/12 92/25 130/24 135/12 148/3 157/19 I recently [1] 125/24 I reduced [1] 140/23 I regarded [2] 20/9 142/15 I regret [1] 54/6 I relied [1] 33/22 I remember [10] 31/25 38/4 61/22 88/8 106/12 108/15 112/23 115/8 151/2 153/5 I said [5] 15/8 46/6 51/20 83/1 103/10 I saw [3] 19/5 21/10 111/5 I say [9] 71/19 74/25 82/12 85/25 97/25 117/6 125/2 136/5 157/18 I see [1] 34/9 I seem [1] 82/21 I set [1] 79/21 I should [8] 7/1 26/7 73/25 84/22 84/22 89/24 89/25 155/3 I sincerely [1] 129/17 I sort [1] 146/20 I spent [3] 3/3 3/6 5/7 I spoke [3] 26/24 146/2 153/15 I started [1] 8/24 I still [1] 23/11 I stopped [1] 22/15 I subsequently [1] 40/7 I suppose [4] 39/21 114/23 117/17 156/7 I think [97] 1/23 2/16 4/17 8/6 15/8 16/11 16/13 16/14 18/2 19/25 21/17 22/9 22/13 25/14 27/12 27/24 28/5 28/17 33/11 35/8 36/20 37/17 40/11 41/2 48/23 51/14 53/19 57/1 57/5 57/8 57/10	57/10 60/9 61/15 62/13 62/19 64/21 65/12 66/1 69/18 71/23 72/23 75/16 75/22 77/10 78/21 78/22 85/4 86/24 87/20 88/4 88/15 89/14 90/10 91/3 94/8 94/8 94/22 99/13 99/18 100/9 100/23 101/15 105/6 107/12 108/22 109/22 110/22 111/7 114/9 115/8 122/22 127/12 128/13 128/14 129/20 130/16 134/14 134/23 135/8 136/14 136/18 139/16 143/9 144/9 146/6 147/18 149/11 151/20 153/17 153/20 154/22 155/22 156/13 157/13 159/18 161/19 I thought [3] 19/6 59/21 96/19 I told [1] 25/17 I too [1] 160/19 I took [3] 2/25 5/5 96/19 I tried [3] 19/4 35/12 55/5 I understand [10] 19/13 41/2 41/4 53/15 57/17 58/12 95/20 107/15 149/5 155/5 I very [2] 26/3 144/19 I want [9] 25/10 34/6 60/6 69/9 73/4 110/20 157/20 160/10 160/22 I wanted [1] 48/8 I was [71] 2/4 2/13 2/22 3/15 5/2 5/2 7/3 7/3 8/20 8/20 9/14 10/16 11/14 13/6 13/13 13/15 16/23 21/25 22/8 22/23 23/9 26/5 28/12 32/24 33/1 35/6 37/15 37/24 38/3 38/10 40/3 40/5 41/16 43/18 45/17 46/12 47/17 58/8 68/4 88/10 90/5 93/2 94/8 95/18 100/19 103/5 103/7 103/11 104/15 111/2 111/3 111/13 111/15 111/18 113/13 120/9 121/7 121/16 128/11 134/14 137/8 137/9 137/10 137/11 137/12 137/21 138/1 142/5 142/14 147/21 160/12 I wasn't [9] 9/20 40/15 40/18 53/3 57/9 57/12
----------	---	---	--	--	---	--

(52) hope - I wasn't

I	136/18 143/7 150/10 155/25 160/18 160/19 I, [1] 48/24 I, you [1] 48/24 i.e [1] 99/4 IAN [3] 1/16 120/21 163/2 idea [8] 17/9 17/19 25/22 45/20 49/13 61/15 110/8 112/7 ideal [1] 89/14 ideas [1] 130/3 identification [1] 105/15 identified [4] 56/16 64/18 101/19 122/24 identify [1] 103/24 identifying [1] 145/23 if [126] 1/11 8/21 11/17 14/20 14/25 15/11 15/13 16/14 18/17 20/1 22/11 23/2 23/4 25/3 25/7 25/9 26/12 26/12 27/5 27/19 28/4 29/9 30/13 30/23 32/21 33/25 34/13 35/16 36/24 37/7 38/11 39/25 43/2 43/4 43/23 44/7 44/8 44/18 45/24 46/6 49/25 50/9 51/25 52/14 54/1 55/24 57/14 58/9 59/6 61/21 62/13 63/4 63/13 63/14 63/21 64/5 64/13 65/1 69/21 70/3 71/1 73/18 73/23 74/10 74/17 77/5 78/4 80/23 81/7 81/18 82/16 83/19 86/15 87/2 91/9 92/11 93/12 94/6 94/15 94/23 95/17 95/21 97/2 97/11 97/12 98/6 98/11 98/12 98/16 102/15 104/20 106/19 108/18 109/12 110/10 112/13 113/24 115/3 115/24 116/12 116/14 117/16 118/10 118/11 124/5 127/23 128/6 129/15 129/15 130/14 132/16 132/17 138/12 142/21 142/22 145/15 145/20 146/4 146/12 155/6 155/13 155/14 155/14 156/11 160/24 161/12 ignorance [1] 102/9 ignore [1] 130/14 ignored [1] 146/20 ii [4] 35/18 35/21	141/21 142/2 III [8] 82/5 87/2 89/10 98/21 99/2 99/5 107/23 144/2 ill [1] 61/7 illness [7] 48/11 56/7 63/12 64/15 64/17 68/9 104/21 illnesses [1] 142/23 Imanu [1] 26/8 immediate [4] 5/25 6/1 7/5 89/3 immediately [3] 58/24 131/2 137/24 immune [2] 10/20 142/11 immuno [3] 69/19 114/17 127/15 immuno-deficiencies [1] 114/17 immuno-tolerising [1] 127/15 immunocompromised [4] 60/12 60/24 83/3 104/17 immunodeficiency [6] 61/16 62/16 62/25 63/7 63/19 63/24 immunologist [1] 10/17 immunologists [1] 116/21 immunology [4] 10/5 10/16 113/6 113/19 impact [1] 10/6 impart [1] 92/16 imparting [1] 91/17 imperative [2] 151/6 153/3 imperfect [1] 79/4 implemented [1] 139/19 implication [2] 70/17 151/21 importance [4] 23/12 44/11 96/24 129/21 important [22] 24/9 28/10 44/21 53/7 61/1 64/10 75/16 92/13 101/10 101/11 115/13 128/15 130/4 132/21 135/13 138/19 139/18 140/23 148/21 153/15 158/7 160/15 importantly [2] 26/11 35/13 impossible [3] 61/12 132/17 158/3 impressed [1] 21/25 impression [3] 5/13 40/24 41/9 improve [6] 8/11 12/2	16/25 129/19 135/5 150/1 improved [8] 18/11 123/9 123/18 124/20 125/3 130/8 132/9 139/16 improvement [1] 162/1 inadequacies [1] 59/22 inadequate [6] 6/8 6/14 6/14 18/25 82/22 125/3 inadequately [1] 54/6 inappropriate [4] 96/19 123/7 124/12 125/4 inappropriately [1] 15/21 incidence [1] 152/2 incident [1] 125/7 include [4] 20/25 144/5 148/5 148/21 included [3] 25/14 39/7 65/15 includes [2] 91/13 148/19 including [11] 30/15 68/12 70/2 99/1 129/13 135/6 135/19 148/14 148/22 152/10 152/25 incompatible [1] 55/4 incomplete [1] 55/21 incorrectly [1] 52/10 increase [1] 38/23 increased [1] 126/25 incredibly [6] 13/9 15/9 24/9 60/16 83/16 101/9 incubation [1] 71/3 incumbent [1] 78/2 indeed [12] 11/5 48/15 59/14 61/11 66/12 79/1 88/14 91/7 106/6 133/21 160/1 161/25 independent [4] 52/22 93/5 138/12 139/7 Indian [1] 142/8 indicated [1] 39/5 indication [2] 50/1 61/24 individual [1] 121/12 inducement [1] 23/17 industrial [4] 6/5 12/14 12/21 12/22 infected [15] 72/4 72/17 85/10 86/19 94/5 94/18 103/3 112/15 112/21 115/4	115/25 116/12 144/21 145/17 155/15 infection [17] 24/14 49/10 50/2 51/6 62/17 64/7 75/15 83/2 89/10 91/9 104/16 109/19 109/21 122/13 123/3 125/1 154/8 infections [14] 39/6 44/13 45/14 60/11 60/23 63/17 64/4 104/19 113/8 131/1 131/2 142/10 149/22 150/9 infectious [17] 10/5 11/1 64/2 65/25 104/10 104/24 106/5 112/18 113/5 113/11 113/14 113/19 113/23 113/23 114/12 115/13 116/20 infectivity [1] 25/20 Infirmary [9] 1/24 2/7 9/3 13/25 35/15 87/11 105/25 144/6 146/11 inform [1] 75/19 informally [1] 22/8 information [56] 20/4 37/20 40/19 40/19 46/15 52/1 52/4 52/9 52/13 52/15 52/15 52/24 53/2 53/4 53/10 54/21 58/17 58/19 58/22 66/13 66/14 71/20 74/5 74/11 74/15 74/17 74/17 77/25 78/7 78/11 78/18 80/18 81/10 82/19 83/17 84/12 85/9 85/10 86/2 87/16 88/12 88/23 88/25 90/8 90/17 90/20 91/5 91/17 92/17 94/3 95/6 103/13 138/6 140/6 146/18 156/13 informed [3] 155/24 156/10 156/12 informing [1] 80/14 informs [1] 120/1 infrequent [1] 13/21 infrequently [3] 18/17 27/1 27/3 inhibitor [4] 32/4 38/6 126/20 147/15 inhibitors [5] 38/1 39/4 127/1 127/10 151/11 initial [3] 26/5 83/14 87/8 initially [17] 7/12 8/15 9/20 28/24 60/17 61/2 80/11 88/12 103/18	108/24 113/17 114/10 124/1 134/12 145/19 145/24 151/14 injuries [2] 28/23 29/2 injury [3] 18/23 29/21 109/9 inoculum [1] 64/9 input [12] 7/18 92/7 97/14 100/16 100/25 106/1 113/20 114/1 118/17 129/23 139/16 143/11 inquiries [2] 158/6 158/16 inquiry [18] 1/12 11/6 62/20 64/25 65/9 75/9 90/24 90/25 92/1 95/4 101/2 124/10 133/4 156/20 158/16 159/2 160/3 160/15 insensitive [1] 50/13 inside [1] 138/14 insignificance [1] 22/22 insignificant [1] 31/17 insist [1] 123/12 insofar [1] 13/11 instance [26] 6/16 7/20 10/16 15/24 29/20 44/1 51/1 54/24 83/19 89/1 92/12 92/20 104/1 118/25 119/9 120/14 120/23 122/7 123/11 125/13 131/13 131/19 138/5 138/7 143/4 150/6 instigated [1] 91/3 instil [1] 161/23 institute [2] 30/16 153/18 instituted [4] 11/5 21/14 33/13 40/23 institution [2] 14/23 122/3 insurance [1] 101/13 insurances [1] 101/17 intended [3] 100/21 138/21 149/1 intending [2] 53/9 100/20 intensive [2] 99/9 114/8 intention [1] 6/7 interest [8] 65/14 83/2 128/23 141/23 143/9 143/10 143/11 149/1 interested [3] 65/11 97/10 142/5 interfere [1] 117/7 interferon [4] 13/1 115/6 115/6 115/10 intermittent [2] 5/5
---	---	---	--	---	--

(53) I wasn't... - intermittent

I	irradiation [1] 126/2	IX [2] 109/23 110/5	132/23 134/22 138/14	59/15 61/21 61/25	lady [1] 134/15
intermittent... [1] 80/9	irrelevant [1] 126/15	J	138/20 140/12 141/16	66/22 67/12 68/1	Lancet [6] 67/1 67/9
internal [2] 29/22	irreversibility [1]	Jane [1] 68/21	144/1 144/25 148/11	68/19 68/25 69/1	69/4 69/5 69/6 72/2
97/21	63/18	Jane Desforjes [1]	150/23 153/10 153/23	72/10 72/15 72/20	LANGSTAFF [2]
international [4] 17/5	IRs [1] 125/7	68/21	156/5 156/7 158/18	72/23 74/10 75/6 75/7	149/8 163/4
46/25 60/11 67/14	is: [1] 54/6	January [10] 3/11	161/4	75/8 75/17 75/18	large [5] 21/8 29/11
international/national	is: inadequately [1]	31/22 68/20 69/4	K	75/19 76/9 76/23 77/2	65/23 83/7 112/20
[1] 46/25	54/6	69/10 69/20 69/20	Kaposi [1] 105/7	77/22 79/14 79/15	largely [4] 38/9 46/5
internet [1] 20/6	ISBN [1] 59/18	71/14 72/1 72/9	Kaposi's [1] 76/13	79/15 82/24 82/24	52/10 94/16
interpret [1] 36/14	isn't [3] 86/22 120/7	January 1983 [7] 3/11	Katharine [2] 17/7	82/25 84/4 84/25 85/8	larger [1] 15/12
interpreted [1] 36/25	141/10	31/22 69/4 69/10	136/13	86/1 86/3 87/14 94/14	last [5] 34/19 63/5
interventionist [2]	issue [19] 12/14	69/20 72/1 72/9	Katharine Dormandy	94/23 95/21 96/15	70/4 109/4 150/24
98/25 100/12	24/24 29/10 38/7	jargon [1] 39/7	[2] 17/7 136/13	96/17 97/1 101/25	lasting [1] 12/19
interview [1] 103/8	75/12 90/22 94/1	jirovecii [1] 104/18	keen [2] 25/3 153/5	104/1 106/15 107/4	late [7] 4/8 7/24 32/20
into [18] 3/16 10/8	96/11 99/11 120/7	job [6] 5/6 44/18 46/6	keep [9] 28/9 35/12	108/4 108/5 109/10	49/16 52/16 122/20
17/10 21/4 21/7 22/22	120/14 122/14 126/7	51/25 91/12 91/16	58/1 67/8 106/18	112/21 116/14 117/2	140/8
33/16 34/3 48/21	126/10 126/13 142/6	jobs [1] 2/14	126/14 140/18 147/3	117/3 120/13 120/22	late 1970s [1] 140/8
60/18 61/22 63/14	142/14 142/15 144/1	John [12] 25/5 30/7	154/1	121/4 121/23 121/25	later [21] 4/5 5/1 5/5
76/8 102/12 104/6	issues [12] 5/25 6/1	33/3 51/12	keeping [3] 78/15	122/2 122/7 128/6	9/3 9/21 12/11 14/13
116/18 124/2 135/22	12/12 66/13 78/3	John Cash [2] 25/5	149/2 159/22	129/5 130/10 130/14	21/17 24/10 25/9
intracranial [1] 28/20	87/12 95/18 98/7	33/3	Kennedy [1] 120/21	132/1 135/3 135/13	26/11 32/23 33/9
intravenous [2] 62/18	121/1 130/2 137/5	join [1] 44/7	kept [1] 46/1	136/16 137/19 139/1	36/19 49/19 54/13
63/2	148/24	joined [3] 8/7 19/11	Kernoff [6] 3/4 53/18	140/3 140/13 141/13	98/15 136/1 138/13
introduce [3] 6/23	it's [99] 15/21 16/14	68/5	57/9 68/2 151/2 153/4	142/4 143/13 145/2	146/17 152/22
108/8 150/7	25/8 27/6 28/8 34/14	joint [4] 113/9 113/12	kick [1] 150/23	145/8 146/3 147/12	latter [4] 48/19 68/9
introduced [4] 33/15	35/6 36/13 36/24 38/7	116/20 117/1	kick-started [1]	149/19 151/24 151/25	77/23 95/5
35/19 43/10 150/3	38/15 42/7 42/9 46/3	jointly [1] 49/17	150/23	152/5 152/11 152/13	latterly [3] 49/6 118/5
introduction [2] 7/18	48/13 50/23 52/3	joints [1] 127/9	killed [2] 131/19	153/6 154/2 154/8	118/6
107/10	56/11 56/21 59/25	Jones' [4] 44/3 52/19	131/23	155/5 155/9 155/10	LAV [1] 153/20
invariably [1] 131/5	61/12 62/8 66/18	58/18 59/5	kind [3] 20/2 97/18	155/13 155/14 155/16	laws [1] 147/4
Inverness [1] 85/21	67/19 67/22 69/13	Journal [6] 67/1 67/9	128/1	156/9 157/8 158/23	lead [2] 56/18 56/18
inverted [1] 11/17	69/17 69/18 69/19	68/18 68/20 71/9 72/2	King [1] 161/20	159/5	leaders [1] 130/19
investigate [1] 98/24	69/20 73/5 73/7 73/23	journals [3] 46/1	Kingdom [1] 9/23	knowing [1] 129/6	leading [1] 69/23
invitation [1] 126/9	78/1 78/10 78/15	46/12 46/16	kitchen [1] 124/24	knowledge [18] 18/16	leads [1] 56/12
invitations [1] 146/5	78/23 79/3 79/9 79/10	judgments [2] 158/4	knew [34] 18/7 23/18	25/18 31/13 40/6 53/1	leaflets [6] 44/4 52/15
invite [2] 62/5 128/3	79/12 79/20 80/22	159/19	24/3 24/8 31/12 49/2	57/19 60/6 66/7 69/15	52/17 79/18 124/7
invited [3] 17/25	80/23 81/5 83/22	July [1] 67/13	49/6 49/10 49/19	71/23 77/17 78/11	140/7
145/22 148/14	86/23 87/13 87/20	July 1982 [1] 67/13	50/25 51/11 51/18	84/10 111/17 123/25	learn [6] 45/7 110/25
involve [4] 2/2 99/9	89/14 91/16 92/11	June [3] 60/8 60/12	54/15 54/16 57/21	141/23 142/22 143/24	157/25
105/16 145/20	92/23 92/25 93/12	62/11	57/24 71/17 76/17	known [8] 40/17	learned [2] 24/10
involved [8] 37/10	93/20 99/13 107/1	June 1982 [3] 60/8	76/20 76/21 78/14	63/24 72/17 82/17	132/13
40/7 115/18 121/23	116/2 119/14 119/15	60/12 62/11	83/4 83/7 83/9 87/9	97/8 100/24 152/1	learning [1] 123/13
143/24 145/19 147/20	119/24 120/5 120/13	junior [2] 5/20 45/25	88/10 104/18 105/11	152/4	learnt [4] 53/17
156/21	123/9 123/22 124/20	just [71] 1/21 10/16	106/4 106/5 111/15	knows [1] 29/2	114/24 133/4 142/10
involvement [7] 37/7	125/17 125/17 126/4	13/7 21/18 23/7 27/25	140/11 141/23 150/16	Kuru [1] 54/16	least [26] 11/24 36/10
91/1 100/4 104/9	126/25 127/1 127/2	29/25 34/13 35/18	knives [1] 143/15	L	36/22 41/10 45/20
119/23 139/15 144/17	128/14 128/14 129/18	38/13 39/24 40/11	know [149] 14/2 14/4	lab [4] 32/10 84/24	57/10 57/13 62/6
involving [1] 70/20	130/8 130/13 130/13	40/21 42/5 46/12	14/8 14/20 15/11	90/15 134/18	71/21 80/13 85/20
Ireland [18] 5/4 10/11	135/13 140/13 141/16	47/17 49/17 53/5	16/11 16/12 17/12	labile [1] 40/13	87/22 90/1 91/10
15/11 23/24 122/4	142/7 145/1 145/10	53/12 54/7 54/22	18/5 20/1 20/25 22/11	laboratories [2] 6/6	94/18 96/9 100/13
123/11 125/8 128/10	146/4 147/24 155/6	54/24 55/12 56/15	23/23 24/3 24/12	96/16	109/16 113/17 129/4
130/10 131/12 131/14	155/13 155/14 156/3	57/18 58/3 67/5 69/24	24/24 25/19 25/25	laboratory [12] 6/3	131/19 146/3 148/4
150/6 156/24 157/2	156/14 157/17 157/18	71/1 71/13 71/14	28/2 28/21 30/12 31/7	9/8 29/17 44/24 85/3	148/21 153/1 155/19
157/3 158/14 158/25	158/23 159/17 159/21	71/19 75/18 79/10	31/20 33/5 36/6 38/5	103/17 103/21 109/18	leave [2] 56/13 85/16
159/9	160/15 160/20	79/21 79/22 82/14	40/16 41/18 42/2	122/10 134/6 134/10	leaving [2] 12/16
Irish [6] 4/24 5/6	its [8] 6/11 20/15	93/13 94/22 95/17	43/16 46/6 48/24	134/13	136/22
130/20 157/11 159/24	67/13 71/17 76/23	97/14 98/9 99/21	50/23 51/3 51/5 51/8	lack [9] 7/19 9/22	lecturer [3] 111/3
162/5	itself [7] 10/24 15/14	100/3 100/14 101/17	54/1 54/3 54/4 54/4	10/13 75/24 78/11	111/13 113/24
Irishman [1] 157/8	15/25 17/10 60/21	102/6 111/8 118/19	54/11 54/14 55/2	127/25 128/2 134/24	lecturers [2] 112/17
ironic [1] 22/4	102/10 159/22	119/3 120/1 129/19	55/15 56/6 56/6 56/21	136/19	112/19
ironically [1] 24/6	ivory [1] 10/7	130/3 132/15 132/17	57/9 57/20 57/23 58/1	lacking [2] 11/3 78/16	lectures [1] 68/13

L	118/10 143/17 147/3 156/4 156/22 158/21 life-changing [1] 156/4 life-threatening [3] 30/6 54/19 92/19 lifted [1] 20/21 light [2] 96/7 151/5 lightly [1] 91/21 like [79] 1/11 9/7 11/1 11/2 14/15 14/21 14/25 15/13 15/24 16/19 18/12 25/3 28/18 31/12 31/25 32/13 39/22 39/25 40/21 44/18 45/4 47/5 47/25 49/25 51/25 52/8 52/14 52/21 54/2 54/16 67/21 80/23 81/7 81/11 82/14 83/22 87/11 89/19 93/4 94/15 101/4 105/8 108/18 109/8 113/24 118/11 119/11 119/23 121/12 121/18 121/21 122/8 122/11 124/21 124/23 125/10 125/20 125/21 125/25 127/3 128/7 128/13 129/19 130/6 135/12 137/3 138/7 138/12 143/13 152/14 153/4 153/8 154/3 154/12 156/11 157/13 159/3 161/16 162/1 liked [1] 103/11 likeliest [1] 72/3 likely [10] 47/24 55/16 65/3 72/11 75/2 77/11 153/19 153/22 154/6 155/11 Lilleyman [1] 51/12 limited [5] 9/2 21/24 28/3 113/17 137/14 Lindsay [4] 157/14 157/24 158/7 159/10 Lindsay Tribunal [3] 157/14 157/24 158/7 line [3] 146/25 150/21 152/13 lines [2] 63/15 143/2 lines: [1] 89/17 lines: we [1] 89/17 list [9] 61/19 61/20 69/7 69/22 101/10 103/1 144/12 144/14 144/24 listening [1] 161/10 literature [2] 67/7 67/8 little [22] 20/18 21/18 23/19 35/18 45/23	46/11 47/1 48/8 75/15 77/6 95/2 102/5 129/10 131/18 132/7 132/7 137/9 140/2 149/15 151/13 153/3 161/17 live [2] 89/23 132/18 liver [13] 49/10 49/21 49/22 50/9 51/15 51/17 56/10 56/19 57/7 57/12 106/11 106/14 106/18 Liverpool [5] 1/24 2/5 2/6 2/15 122/9 lives [1] 29/13 living [2] 21/10 44/3 loaned [1] 146/16 local [5] 34/20 88/17 104/22 104/23 122/15 location [1] 1/6 locked [1] 96/12 locum [1] 5/6 Logan [1] 134/23 logically [1] 56/14 London [9] 4/6 18/11 18/14 18/15 51/13 69/19 70/7 105/17 118/7 lone [2] 5/18 147/21 long [33] 14/18 14/23 14/24 20/8 28/8 38/7 53/6 53/21 55/14 56/2 61/10 61/17 76/20 90/7 94/1 98/25 100/4 100/12 100/16 104/3 119/7 119/16 126/14 127/19 136/8 143/8 147/2 149/3 150/24 152/5 152/21 154/10 159/20 long-term [7] 53/21 56/2 98/25 100/4 100/12 100/16 119/7 long-winded [2] 53/6 104/3 longer [5] 4/20 33/14 125/11 141/16 141/16 longer the [1] 125/11 longer-acting [1] 4/20 look [20] 10/19 34/6 34/18 35/17 38/13 59/5 62/5 63/5 63/14 64/13 64/25 73/18 73/23 75/4 98/18 125/10 130/10 131/22 145/3 159/5 looked [10] 14/15 62/6 68/21 90/23 93/8 100/11 118/2 118/7 125/24 158/23 looking [13] 39/3 39/5 39/8 40/9 58/3 69/14	86/4 92/1 115/15 118/3 135/16 150/7 154/19 loosely [1] 25/8 lost [1] 109/2 lot [56] 10/14 11/16 14/16 14/19 15/15 16/7 16/12 18/8 18/11 23/20 29/11 30/18 31/10 47/5 68/11 74/11 78/7 83/3 83/9 84/12 94/8 94/10 101/6 101/14 102/3 103/15 104/4 104/17 104/18 105/20 107/8 108/20 111/7 111/24 114/1 114/15 114/15 116/19 118/6 118/7 118/25 119/2 121/18 124/21 125/3 133/2 135/4 135/4 135/18 139/6 152/10 157/18 158/6 160/3 160/3 160/23 lots [9] 23/4 29/17 59/24 62/2 62/2 69/14 78/11 151/5 156/12 Lou [1] 49/21 Lou Aledort [1] 49/21 low [4] 27/2 51/2 112/24 147/15 Lowe [7] 35/13 86/2 96/6 107/7 144/8 144/15 162/9 lower [1] 141/17 lucky [1] 121/7 Ludlam [6] 34/19 35/2 35/24 70/2 85/9 85/13 lump [1] 14/6 lunch [3] 95/8 95/11 95/19 Luncheon [1] 95/15 lymph [1] 64/12 lymphotropic [1] 142/4	65/21 75/5 75/6 102/9 134/10 134/13 138/14 141/23 mainly [10] 3/15 7/16 20/22 26/8 33/24 80/3 88/16 112/17 134/14 143/12 maintain [2] 109/13 141/11 major [14] 40/23 101/20 107/2 116/18 118/8 120/7 122/20 129/22 131/11 132/15 133/3 141/14 149/23 149/24 majority [5] 3/19 88/15 88/15 112/4 127/21 make [13] 31/14 58/13 59/13 60/2 60/9 86/11 86/20 88/20 89/13 93/15 98/1 98/2 159/19 makes [1] 158/12 malaria [1] 150/11 Malaysia [1] 131/20 MALCOLM [2] 1/16 163/2 malignancy [1] 2/12 man [1] 130/20 manage [7] 29/16 75/8 75/19 119/12 119/13 137/1 143/15 managed [10] 61/6 104/17 112/16 113/9 116/4 116/10 116/22 117/5 117/8 119/2 management [14] 7/22 14/17 19/4 32/13 99/7 113/18 115/14 115/14 115/15 116/1 117/1 117/13 125/16 160/1 managers [1] 16/18 managing [1] 15/20 Manchester [5] 1/25 2/1 2/5 61/3 136/8 mandated [1] 4/3 manifest [1] 137/7 manifestation [1] 110/13 manner [1] 146/19 Mannucci [2] 49/20 50/5 mantra [5] 20/23 23/10 49/25 50/8 93/10 many [38] 2/11 5/21 5/24 16/25 21/9 22/7 22/7 31/7 33/20 39/23 43/16 44/17 44/19 46/14 50/13 52/5 52/6	54/24 55/12 59/3 64/7 65/25 67/2 67/3 67/4 76/2 77/19 98/9 106/8 109/11 118/1 130/14 131/13 138/16 146/25 147/14 157/16 161/9 March [3] 42/16 73/4 73/9 March 1983 [1] 73/4 Marie [1] 26/8 mark [3] 33/1 46/20 103/10 marketing [1] 140/3 marking [1] 46/17 Markova [4] 97/9 100/9 130/18 143/7 marrow [9] 3/7 3/16 8/25 9/1 15/24 16/1 18/9 126/3 141/24 Martin [1] 30/7 marvellous [1] 102/24 Mary [1] 1/13 massive [7] 32/4 46/19 78/19 126/21 127/1 127/2 158/3 matching [1] 6/18 materials [3] 53/18 60/3 62/9 maternity [1] 85/16 matter [10] 1/10 59/23 61/1 79/15 102/16 118/12 118/13 118/16 136/3 156/8 matters [3] 35/20 157/12 157/12 maximum [1] 88/21 may [48] 20/11 22/19 24/12 25/9 27/12 32/7 33/9 47/22 53/17 54/19 59/24 64/9 75/21 75/22 78/1 78/19 79/1 79/2 84/11 85/17 85/17 85/20 86/2 86/10 86/14 86/21 90/10 90/22 95/4 101/9 108/23 110/2 114/10 120/15 120/15 120/16 120/21 126/14 136/16 141/25 144/8 144/15 149/19 153/17 155/21 157/13 158/5 162/5 maybe [6] 27/25 54/18 93/19 118/3 136/4 148/18 Mayne [1] 136/2 McMaster [1] 134/16 me [55] 1/19 6/4 8/17 14/15 16/22 22/4 35/13 47/6 52/24 53/7 54/10 55/24 57/10 57/11 60/4 67/19
----------	---	---	--	---	--

M	memories [1] 157/15 memory [20] 16/22 22/19 25/1 27/24 32/2 42/20 61/9 86/5 86/17 86/22 86/22 95/24 96/4 109/25 110/14 111/8 142/7 145/3 157/19 157/21 men [2] 62/17 63/1 mentioned [7] 24/15 37/6 39/16 40/1 128/8 135/7 143/7 met [4] 82/12 100/10 111/9 141/22 method [2] 36/17 88/18 methods [2] 46/5 132/19 microbiologist [1] 12/23 microbiologists [1] 65/25 microbiology [1] 104/25 mid [5] 29/13 47/21 121/17 140/8 147/24 mid-1970s [2] 121/17 147/24 mid-morning [1] 47/21 middle [1] 35/17 might [33] 18/24 21/11 25/9 29/3 46/7 50/11 56/14 57/22 57/25 60/3 65/4 77/3 77/5 78/24 79/4 81/15 81/20 85/24 89/2 92/16 95/17 103/9 103/13 105/3 119/18 119/20 125/1 133/19 143/3 147/22 151/22 156/2 158/10 mild [5] 11/18 27/19 30/23 108/19 111/21 milder [1] 110/12 million [3] 43/20 43/20 127/3 mind [6] 28/24 88/11 133/14 149/17 154/22 160/24 minds [1] 157/16 minimal [1] 36/4 minimally [1] 108/10 minimum [1] 140/18 Minister [1] 9/5 minor [5] 30/18 30/18 48/11 48/17 152/6 minuscule [1] 110/6 minutes [18] 12/19 17/14 17/15 18/4 24/15 32/21 34/14 34/18 35/12 36/14	57/6 58/10 69/11 70/9 78/22 82/22 128/13 141/16 misleading [2] 51/13 58/7 mistakes [1] 123/6 MMWR [3] 67/13 67/17 70/24 moderate [2] 11/18 30/23 moderates [2] 108/19 108/20 moment [9] 1/5 56/13 84/15 109/2 131/12 131/15 132/8 132/22 149/20 moment: [1] 132/17 moment: how [1] 132/17 moments [1] 34/10 Monday [1] 90/5 money [4] 7/16 13/6 137/4 138/24 monitored [1] 125/5 Montagnier [1] 153/18 Montagnier's [2] 75/23 78/14 month [4] 13/1 67/13 70/22 80/13 monthly [1] 80/11 months [13] 3/3 3/4 3/15 3/22 3/22 5/5 5/7 7/8 8/2 12/1 19/23 50/10 71/4 moot [1] 16/14 moral [1] 24/24 morbidities [1] 62/1 more [65] 9/20 11/25 12/4 12/12 13/16 15/12 18/14 18/24 21/18 25/23 29/25 30/18 35/13 37/8 48/9 48/11 48/21 50/10 52/11 61/3 65/18 66/11 66/16 77/11 77/11 80/12 83/22 84/19 86/1 86/20 88/3 93/21 94/10 96/2 99/23 100/3 100/4 100/25 105/3 106/13 108/20 108/21 110/4 117/10 119/13 119/15 133/13 137/15 139/13 141/13 143/10 144/9 146/4 148/9 149/1 149/15 150/5 151/14 152/20 153/19 153/19 153/22 153/22 155/18 156/11 morning [6] 1/18 47/21 66/13 147/18	149/10 162/6 mortality [6] 63/6 63/8 70/13 72/18 72/19 72/21 mortgages [1] 101/14 most [13] 13/18 18/13 22/15 31/18 51/10 55/20 62/3 92/12 103/17 131/4 140/14 147/23 158/7 mother [2] 89/9 89/9 mothers [1] 145/19 mouth [1] 40/12 move [5] 21/15 47/18 57/14 95/7 110/20 moved [7] 2/17 4/5 4/11 5/3 71/14 118/16 144/6 moves [1] 8/11 moving [1] 12/16 Mr [1] 149/5 Mr Bowie [1] 149/5 Ms [4] 1/14 1/17 139/15 163/3 Ms Leitch [1] 139/15 Ms Richards [1] 1/14 much [38] 3/11 5/16 5/19 9/6 15/11 15/12 19/2 23/8 24/7 26/3 26/4 33/23 34/2 46/14 48/21 54/12 93/21 99/23 106/17 113/13 117/21 117/21 119/15 122/19 127/11 127/19 129/17 129/25 133/6 140/21 140/25 142/14 144/19 150/5 151/14 152/3 155/17 156/14 multi [1] 8/19 multi-use [1] 8/19 multidisciplinary [2] 7/21 115/17 multifactorial [5] 50/18 50/23 62/3 76/17 76/18 multiple [6] 18/19 50/24 69/23 81/13 118/14 120/24 Murphy [9] 33/25 43/22 45/16 80/2 80/5 98/15 100/7 101/25 139/24 must [2] 93/1 132/8 mustn't [1] 47/24 my [100] 2/13 2/25 5/4 6/10 7/12 9/16 10/10 13/14 16/22 16/22 17/22 18/16 18/25 19/5 19/8 19/16 21/21 22/19 25/1 25/18 25/25 27/8 27/24 30/13 31/8 32/2	35/12 36/13 40/5 40/6 40/21 49/14 51/3 52/11 54/6 55/21 59/4 59/22 60/19 61/3 61/7 61/9 61/24 74/9 75/14 76/2 77/10 81/5 81/14 82/12 82/17 83/2 83/21 86/5 86/17 86/22 86/22 88/11 90/21 92/10 93/7 93/16 94/9 95/6 95/24 96/4 97/16 98/9 102/7 103/10 106/7 108/5 109/25 110/14 113/13 116/3 116/4 118/10 121/15 126/9 128/20 129/2 130/7 132/25 134/9 135/24 141/23 142/7 142/22 143/8 144/25 145/3 145/14 146/19 149/4 154/7 154/22 157/7 157/21 161/2 myeloid [1] 92/20 myself [7] 5/15 36/21 46/13 74/14 102/13 137/4 158/19	N name [4] 1/11 97/6 107/20 158/5 named [2] 42/14 90/16 names [2] 144/11 144/13 nasty [1] 109/9 nation's [1] 26/17 national [9] 5/8 9/1 10/18 16/5 34/15 46/25 127/25 128/2 148/19 Nationwide [1] 63/9 natural [3] 75/7 75/17 76/23 nature [6] 17/4 32/15 60/13 64/22 65/24 143/1 near [3] 120/25 124/14 158/5 nearly [2] 68/7 153/10 necessarily [7] 66/5 66/10 72/16 93/12 121/21 121/22 121/23 necessary [8] 8/21 25/16 27/15 31/14 32/21 87/15 108/13 158/6 necessity [1] 100/23 need [26] 15/22 16/15 21/12 23/19 26/15 26/21 58/24 59/6 64/18 84/14 89/18	92/17 96/21 98/5 100/3 117/22 131/5 132/9 133/11 133/14 138/11 139/5 141/11 143/2 151/3 152/11 needed [36] 5/24 6/19 7/7 16/24 16/25 19/1 19/21 29/20 32/1 32/6 37/15 37/20 37/21 47/2 75/7 75/18 88/23 88/24 98/16 99/23 100/9 100/12 110/15 124/24 128/21 128/24 129/2 130/1 137/24 138/22 143/10 149/14 150/18 152/10 156/18 161/18 needles [1] 101/19 needs [8] 15/2 28/22 92/2 98/13 117/21 117/22 121/9 132/5 negate [1] 69/2 negative [2] 155/14 155/15 negatives [1] 83/16 negativity [1] 125/25 neither [2] 88/9 127/4 neoantigens [3] 37/25 39/3 43/5 neonatal [3] 3/21 6/13 131/11 neonatology [1] 136/25 neoplasia [1] 62/17 neurological [1] 54/20 never [12] 7/3 12/21 32/14 41/20 45/6 94/12 94/13 100/21 116/1 145/1 145/3 145/22 new [25] 4/21 8/1 14/21 27/9 27/20 36/1 43/15 52/22 54/12 64/23 65/3 65/4 67/1 67/9 68/9 68/18 68/20 71/8 72/2 108/15 108/17 108/22 135/18 138/7 139/12 New England [1] 71/8 new variant CJD [1] 54/12 newfangled [1] 18/12 newly [2] 26/25 36/16 news [3] 66/15 89/9 156/2 newsletter [1] 67/21 newspaper [1] 85/12 next [20] 27/8 33/17 42/8 52/20 54/18 63/21 64/5 64/6 71/1 73/23 74/4 83/22
----------	--	---	---	---	--	--

N	51/5 53/14 53/20 55/8 55/20 56/1 57/22 59/2 59/13 61/7 107/24 108/12 129/13 147/9 150/25 152/1 153/7 non-B [27] 23/20 39/15 45/20 45/23 48/9 48/10 48/16 48/20 50/11 50/16 51/5 53/14 53/20 55/8 55/20 56/1 57/22 59/2 59/13 61/7 107/25 108/12 129/13 147/9 150/25 152/1 153/7 non-bleeding [1] 70/21 non-HIV [1] 51/21 north [2] 4/5 4/6 north-east [1] 4/6 north-west [1] 4/5 not [204] note [3] 47/19 86/23 95/7 notes [3] 69/19 70/10 146/16 nothing [8] 10/2 31/9 71/17 78/16 78/17 103/24 128/6 132/25 notice [1] 65/19 noticed [3] 46/23 86/10 137/17 November [2] 86/25 87/4 now [45] 1/13 5/9 5/9 19/10 21/14 35/23 40/25 47/20 47/22 48/9 48/13 56/9 65/8 65/19 67/19 67/23 69/18 71/10 86/10 91/10 91/17 93/7 95/21 111/14 116/2 116/12 117/11 122/6 123/11 128/10 128/13 129/17 130/11 131/4 133/17 155/15 158/2 158/14 158/17 158/21 158/25 159/9 159/10 159/16 159/25 nowadays [3] 23/16 47/17 140/7 number [20] 8/4 13/20 17/11 22/18 31/10 33/11 33/12 45/18 71/21 82/3 100/10 101/7 106/12 112/21 112/25 125/21 131/23 133/13 134/2 137/17 numbers [2] 72/5 94/17 numerous [2] 81/2 99/20 nurse [8] 80/7 113/21	114/10 135/21 137/11 138/3 147/24 148/2 nurse-led [1] 147/24 nursed [1] 102/17 nurses [9] 9/17 20/5 92/4 115/18 118/19 138/3 139/2 148/2 148/10 nursing [1] 148/21 NY [1] 107/15	O o'clock [3] 95/10 95/13 162/10 oath [3] 1/14 94/23 94/25 obligation [1] 60/1 observation [3] 36/13 89/12 121/10 observations [1] 36/12 observe [1] 10/3 observed [1] 134/25 Observer [1] 78/25 obtain [1] 100/16 obvious [2] 90/11 99/25 obviously [25] 23/10 23/20 29/8 36/18 40/3 43/13 45/9 54/13 77/17 79/21 87/12 87/14 89/23 90/19 90/23 91/14 118/22 120/19 123/9 127/21 130/3 133/11 140/3 146/19 147/12 occasionally [5] 13/23 30/5 37/23 109/3 146/15 occasions [11] 2/5 17/12 22/7 32/1 32/8 32/8 45/18 47/12 59/3 81/2 126/7 occur [5] 32/3 38/3 51/20 150/10 161/1 occurred [6] 33/11 41/18 44/22 46/7 51/1 96/3 occurrences [1] 38/2 occurring [1] 105/9 occurs [2] 64/3 104/2 October [6] 18/3 74/4 97/2 98/20 99/13 109/23 October 1983 [1] 18/3 October 1984 [1] 97/2 October 1985 [1] 109/23 off [6] 13/14 60/17 85/15 100/14 127/19 134/21 offered [1] 8/16	office [2] 9/9 134/9 officer [3] 1/22 102/25 103/9 often [24] 11/9 11/19 12/1 15/1 15/20 17/18 29/2 43/22 47/15 78/13 79/24 80/5 80/12 83/6 89/7 102/4 110/14 120/5 123/25 124/14 137/12 138/5 152/7 158/17 Ognall [1] 159/2 Oh [5] 4/2 68/10 109/6 151/24 152/25 old [3] 6/10 70/22 92/15 older [1] 91/15 olds [1] 92/15 once [5] 11/12 45/12 99/5 104/11 112/8 oncologist [2] 14/18 137/1 oncology [3] 14/22 15/16 35/8 one [98] 1/13 3/6 5/23 6/3 7/9 10/10 10/13 11/5 11/18 13/14 13/16 13/24 15/1 19/10 21/14 22/21 24/21 27/25 28/21 30/2 31/8 32/3 34/6 34/19 42/5 44/21 47/17 49/17 54/8 54/24 55/12 56/6 56/19 57/11 57/18 58/9 59/8 61/12 61/25 62/5 70/17 70/22 71/5 76/16 86/4 86/12 87/8 87/12 89/7 90/1 91/20 91/22 92/7 92/12 92/24 93/10 94/18 94/19 95/18 100/14 101/17 102/5 102/8 102/12 102/18 102/23 105/3 107/2 110/3 112/17 112/18 112/23 115/9 118/16 122/22 123/16 125/14 127/24 129/22 130/19 132/15 136/12 138/20 139/11 140/17 141/15 142/14 142/18 144/20 145/8 146/3 146/4 148/11 148/13 156/4 156/21 159/2 159/15 one's [1] 91/16 one-off [1] 100/14 ones [2] 91/15 101/11 ongoing [4] 57/8 98/5 114/25 160/20 only [29] 12/18 25/16 32/2 39/2 51/14 51/23	56/21 59/9 61/9 64/7 67/12 71/5 86/15 87/8 89/8 97/23 110/3 112/5 115/9 118/6 126/2 130/10 135/9 140/22 144/4 147/19 148/7 148/7 148/8 onwards [13] 1/23 13/11 18/3 27/10 43/10 45/25 49/7 67/4 77/10 101/1 125/16 151/1 151/21 open [6] 12/7 53/5 79/16 80/24 90/3 138/8 opens [2] 62/23 155/11 operating [2] 19/11 19/18 opportunistic [1] 113/8 opportunity [7] 80/15 92/8 93/9 132/24 133/11 133/14 162/7 opposed [4] 18/19 53/4 81/7 149/2 optimal [2] 155/21 160/2 optimally [1] 126/17 option [2] 30/13 30/24 or [222] oral [2] 4/21 60/9 order [5] 43/19 75/18 82/23 89/5 127/2 ordered [2] 46/15 46/16 ordering [1] 59/20 ordained [1] 113/25 ordination [2] 115/16 148/1 organisation [5] 17/21 19/3 60/17 74/18 147/19 organisations [2] 74/12 74/13 organised [1] 124/8 organisms [2] 150/12 150/12 originally [1] 148/8 Ormond [35] 2/6 2/16 4/11 4/14 9/25 10/18 15/25 20/22 24/21 49/15 91/24 100/17 104/23 105/1 106/4 106/25 107/3 110/21 111/1 112/11 112/15 113/7 114/5 115/21 115/22 116/24 117/11 119/5 121/7 122/2 135/19 137/25 138/13 146/22 159/3 ostracised [1] 101/22	other [68] 2/10 2/11 3/22 3/23 6/20 11/1 12/13 14/9 15/2 16/25 18/20 19/19 21/2 32/5 32/17 33/5 36/18 37/19 39/4 39/8 40/2 40/4 40/9 46/14 52/21 58/19 58/23 58/25 59/24 60/24 63/25 65/13 65/17 72/20 74/12 74/15 75/11 76/10 80/6 87/6 88/13 89/11 93/23 96/20 98/3 100/24 101/21 105/11 106/19 107/6 108/6 114/17 115/15 119/6 129/19 130/24 131/13 131/17 132/12 135/10 135/10 137/3 138/16 143/23 145/15 145/21 150/12 156/12 others [14] 21/1 25/5 25/20 26/6 61/18 69/25 74/14 76/2 84/18 93/21 94/22 130/19 146/7 158/19 our [18] 10/1 22/10 38/20 38/20 51/25 63/8 73/11 101/3 102/20 102/23 103/2 103/4 105/9 113/21 114/24 123/16 139/1 147/23 ourselves [5] 17/3 114/13 116/5 116/19 116/22 out [62] 1/10 8/1 13/10 13/13 13/22 19/22 21/9 34/4 36/5 37/11 50/12 51/10 51/13 55/6 55/7 57/10 59/17 60/1 71/22 73/19 75/4 76/18 82/8 87/1 87/17 87/20 88/12 97/21 101/23 102/6 103/22 103/22 115/2 122/21 123/13 123/16 123/18 124/3 125/22 128/7 128/17 130/25 133/2 133/3 137/16 137/24 138/24 142/8 146/5 146/16 147/20 148/5 148/9 149/2 149/13 149/16 150/21 154/13 157/25 158/7 158/15 162/4 outbreak [1] 103/19 outcome [2] 71/18 125/19 outcomes [1] 155/24 outreach [1] 116/10 outset [1] 8/24
----------	---	--	---	---	---	---

(57) next... - outset

O	84/15 129/18 pandemics [1] 130/6 paper [3] 35/20 64/20 102/18 papers [3] 51/9 62/5 73/16 par [1] 14/25 paragraph [8] 35/17 40/20 63/5 63/14 63/21 64/13 73/18 73/20 paragraphs [1] 70/4 parent [5] 52/21 79/8 89/8 98/13 145/21 parents [16] 40/24 41/8 43/2 55/3 77/1 80/19 81/19 84/10 91/7 91/14 94/2 121/2 121/4 139/19 145/16 145/25 parents' [3] 138/4 145/21 146/1 pariah [1] 77/18 pariahs [2] 103/4 104/6 part [21] 14/10 16/2 41/3 48/19 66/6 68/4 77/23 85/16 91/16 94/25 130/4 132/9 136/22 137/18 143/18 148/15 151/12 153/1 161/12 161/21 162/3 participants [3] 133/10 133/20 134/3 participate [1] 34/23 participated [2] 34/22 35/4 particular [30] 2/12 2/25 28/6 33/5 37/25 39/3 41/17 43/9 46/24 53/14 60/7 60/19 61/2 61/4 61/13 64/11 65/10 70/17 85/22 86/5 91/15 93/17 101/16 108/8 108/9 117/25 118/20 124/17 137/25 162/2 particularly [15] 2/11 13/11 15/5 16/19 60/22 69/1 97/9 104/12 115/18 119/21 122/12 124/13 142/5 149/18 150/3 partner [1] 145/21 parts [1] 157/8 Party [2] 57/6 73/14 pass [5] 83/17 87/16 88/23 92/17 135/9 passed [3] 29/25 77/24 78/12 passing [1] 90/8 past [1] 120/25	Pasteur [1] 153/18 patchy [1] 91/5 pathogen [10] 37/12 149/13 149/16 149/21 150/3 150/8 151/9 151/10 151/12 152/24 pathogenesis [1] 76/24 pathology [1] 3/1 patient [32] 11/9 11/17 27/11 30/7 30/10 32/4 33/16 43/12 49/11 49/17 50/15 52/15 55/1 73/1 79/5 83/3 89/8 90/17 115/1 115/9 116/22 126/17 138/12 138/15 139/17 143/2 144/21 144/23 145/4 146/9 146/11 146/18 patients [141] 2/3 3/13 9/16 10/20 10/21 11/8 13/12 13/18 13/19 13/21 14/6 15/20 16/24 18/19 20/14 26/2 26/9 26/14 27/1 27/3 27/14 27/19 27/21 27/22 28/20 28/23 30/3 31/10 32/5 33/5 33/12 33/19 36/3 36/16 39/9 43/8 43/15 44/10 45/11 49/16 49/21 49/23 49/23 50/13 51/21 52/1 52/14 52/19 53/11 56/15 57/17 58/18 58/21 59/25 60/1 60/25 60/25 63/8 63/9 63/17 64/12 64/16 65/5 70/21 75/8 76/12 76/13 78/23 78/23 80/19 81/17 82/4 83/4 85/10 86/18 87/1 87/22 88/7 90/22 91/8 98/9 101/4 103/2 103/4 104/10 104/22 105/10 105/20 105/21 105/23 106/3 107/14 108/11 108/16 108/22 109/22 110/1 110/3 110/15 111/5 111/9 111/21 112/1 112/3 112/15 112/20 112/25 113/7 113/18 114/4 114/6 114/15 114/19 115/4 115/21 116/6 116/17 116/23 117/5 119/13 124/7 126/3 126/20 127/8 127/14 135/23 141/4 141/4 142/7 142/10 142/11 143/6 143/23 144/4	144/5 144/5 146/23 148/1 148/14 148/20 160/2 patients' [1] 144/13 patriarchal [1] 52/3 patronising [2] 52/3 128/17 pay [1] 98/22 peak [1] 152/1 peaking [1] 50/25 pejorative [1] 138/21 pennies [1] 9/7 Penrose [11] 62/20 64/21 64/25 65/9 75/9 90/24 90/25 90/25 101/2 124/10 145/7 people [74] 1/8 13/8 17/7 19/25 20/3 22/24 23/13 24/7 25/21 26/24 27/25 45/5 45/6 47/2 54/14 54/18 59/2 62/1 62/3 64/3 64/7 64/8 65/15 66/1 70/11 72/19 75/19 75/20 76/10 79/13 79/19 81/8 88/12 88/16 92/13 94/9 101/6 102/7 116/21 118/17 119/23 121/9 121/19 121/22 125/10 129/23 130/18 130/25 131/20 131/23 132/16 135/5 135/6 135/10 135/10 138/16 138/18 138/24 139/3 141/9 141/15 145/23 149/2 152/10 153/4 153/7 153/14 154/12 155/6 156/1 158/5 159/5 160/23 160/25 people's [2] 157/15 157/16 per [17] 18/25 26/14 49/12 51/19 51/19 51/22 51/22 70/13 76/5 92/21 126/25 127/3 153/11 153/12 154/5 154/5 158/24 perfect [1] 83/11 perfectly [3] 51/11 93/23 157/19 perform [1] 20/20 performed [1] 144/16 perhaps [6] 12/19 32/19 47/19 73/25 88/5 97/21 period [42] 3/1 3/20 4/3 5/1 12/2 13/2 18/20 19/1 23/1 23/8 26/23 27/18 28/11 28/15 28/19 29/14 29/17 43/14 43/17	53/13 68/16 71/3 79/12 80/14 81/24 88/21 89/16 92/3 99/18 106/1 107/10 108/9 109/14 109/17 109/22 110/17 111/10 124/17 142/9 147/6 147/7 158/19 periods [1] 8/22 persisted [1] 26/12 persistence [1] 51/6 persistent [3] 49/9 51/17 105/16 person [8] 2/23 7/9 13/24 47/17 86/13 93/2 102/18 134/17 personal [1] 96/20 personally [3] 16/14 35/6 82/25 personnel [2] 8/15 137/15 persons [5] 14/15 61/19 61/21 72/13 76/8 perspective [3] 156/19 161/9 161/11 perspectives [1] 161/10 pervasive [1] 122/17 Peter [4] 44/3 52/19 57/9 106/5 Peter Jones' [2] 44/3 52/19 Peter Kernoff [1] 57/9 Pettigrew [25] 11/6 12/9 33/22 42/10 42/13 45/19 46/24 60/5 74/13 80/2 80/4 80/16 82/6 85/7 85/21 87/24 89/6 91/7 97/24 100/2 100/24 108/23 139/24 146/2 146/3 Pettigrew's [6] 80/17 81/15 85/15 88/2 144/10 146/9 pharma [2] 94/12 148/16 pharmaceutical [3] 4/18 37/19 41/21 pharmacy [1] 32/11 phase [1] 83/14 phlogiston [1] 124/21 photocopy [1] 46/21 physicians [2] 118/3 118/9 physiotherapists [1] 148/22 pick [2] 69/9 70/3 picture [3] 109/3 133/15 161/15 piecemeal [1] 121/19 pieces [1] 140/5	Pierre [1] 49/20 Pierre Mannucci [1] 49/20 pigs [1] 131/21 pile [1] 46/20 piles [1] 9/7 PILs [1] 140/7 pioneer [1] 12/24 place [8] 5/21 19/7 33/24 35/3 85/14 85/18 116/16 121/22 placed [1] 96/10 places [3] 18/14 47/4 121/20 plagues [1] 131/5 planning [4] 105/2 105/5 105/13 148/20 planus [1] 105/8 plasma [6] 50/3 110/4 110/19 112/3 124/15 150/5 platelet [1] 112/24 platelets [2] 70/22 150/8 play [2] 92/13 119/23 pleading [1] 16/21 please [21] 23/3 34/8 35/16 35/18 38/15 42/7 55/24 62/8 62/13 63/4 63/13 63/21 69/17 69/21 70/4 71/13 73/7 82/11 95/20 101/5 123/8 pleased [2] 9/21 92/1 plough [2] 5/18 82/17 plugged [1] 124/25 pm [6] 95/14 95/16 133/24 134/1 162/11 162/12 pneumocystis [5] 89/1 104/18 105/16 118/24 143/3 pneumocystis jirovecii [1] 104/18 point [15] 8/7 16/14 34/2 49/2 75/14 76/25 93/7 93/15 100/5 100/17 105/12 131/25 148/23 158/1 159/24 pointed [2] 36/5 144/8 pole [1] 156/4 policies [4] 11/16 19/12 19/18 19/22 policy [23] 12/8 20/13 21/15 25/12 25/15 27/4 36/1 43/9 44/24 44/25 80/18 80/21 80/21 80/22 80/23 80/24 81/3 81/7 81/12 90/3 102/14 108/14 140/17 politics [3] 7/2 19/3
----------	---	---	--	---	--

(58) outside - politics

P	2/14	principally [1] 49/24	procure [1] 31/22	Professor Lowe [3] 86/2 96/6 162/9	62/8
politics... [1] 135/9	pre-test [9] 82/21	principle [1] 59/23	produce [5] 19/11	Professor Ludlam [4] 34/19 35/2 85/9 85/13	PRSE0002647 [1] 69/17
pontificating [1] 79/11	82/23 84/7 84/9 114/7	principles [1] 120/8	36/5 38/22 66/21	Professor Preston's [1] 57/2	PRSE0003840 [1] 38/15
poor [3] 6/14 7/9	114/24 154/17 154/18	prior [1] 129/1	125/9	Professor Tedder [1] 87/9	pseudo [1] 12/24
110/19	155/17	prior [13] 2/8 31/21	produced [4] 19/13	Professor	pseudoscience [1] 124/22
poorly [2] 115/10	preamble [1] 20/17	41/1 41/9 44/15 52/11	19/20 66/20 147/11	Tuddenham [3] 3/4	pseudoscience-type [1] 124/22
135/19	precautions [6] 45/1	105/1 111/4 120/9	producing [3] 17/16	68/2 68/6	psychiatry [2] 97/6
population [7] 10/15	81/11 88/24 103/20	142/12 143/8 150/16	47/9 124/7	profligate [1] 141/7	99/19
24/12 43/19 76/22	105/14 108/9	150/24	product [25] 37/19	programme [2] 23/5	psychological [10] 54/21 96/25 97/19
77/20 108/6 142/8	precise [6] 86/6 86/20	priorities [1] 132/3	38/5 41/22 42/1 42/4	33/14	100/5 100/12 100/13
populations [2] 105/11 108/6	86/22 96/2 96/6	priority [6] 20/10	42/16 42/25 43/3	programmes [2] 44/14 44/17	100/25 117/22 143/10
porcine [1] 131/22	107/20	22/12 24/18 24/23	52/15 70/18 70/20	progress [1] 113/4	145/15
portering [1] 102/11	precisely [1] 80/10	99/4 136/21	77/9 85/11 94/20	progression [1] 51/19	psychological/social [1] 100/5
position [10] 15/6	predominantly [1] 60/14	prisoners [1] 24/11	107/11 107/20 109/23	project [1] 98/24	psychologist [6] 80/8
64/12 70/8 99/6	prefer [1] 77/5	private [1] 100/20	140/3 140/6 141/17	prolonged [1] 70/16	97/3 97/7 97/8 143/19
112/14 119/19 126/22	preferable [2] 140/10	Prize [1] 76/3	147/7 147/11 147/14	promoted [1] 102/14	143/20
126/23 129/4 159/21	140/16	proactive [3] 53/3	159/7 159/8	51/11 74/18 125/18	psychologists [6] 84/17 92/6 98/5
positive [6] 82/5 87/2	preferably [1] 88/21	proactively [3] 58/23	production [2] 35/23	125/18 125/18 125/19	118/19 132/11 137/13
115/2 145/23 145/24	preferential [2] 24/18	81/16 93/16	50/3	130/17 138/3 139/7	psychology [4] 92/6
155/13	36/11	probability [1] 154/1	products [26] 4/21	159/16	92/22 98/1 114/1
positively [1] 82/9	preferred [4] 21/22	probable [1] 153/23	21/2 23/12 37/6 37/8	properly [1] 15/1	psychosocial [2] 98/25 99/23
positives [1] 83/15	35/24 36/16 36/17	probably [28] 16/18	41/1 41/9 41/14 42/6	properties [1] 124/14	psychotherapeutic [1] 143/11
positivity [2] 99/2	premature [1] 28/14	28/21 29/22 33/10	57/22 72/6 75/3	prophylactic [1] 33/15	public [10] 1/5 1/11
99/5	prepared [1] 131/6	33/23 42/21 43/20	114/16 122/11 123/2	prophylaxis [15] 26/2	85/11 103/1 103/6
possibility [3] 109/21	presence [1] 70/2	44/21 46/10 49/4	123/18 124/12 124/14	26/9 75/20 89/3	129/23 130/1 130/2
144/21 153/24	present [8] 35/25	49/19 50/18 50/23	126/1 126/2 127/22	104/19 105/18 105/21	130/4 130/11
possible [17] 17/6	45/17 52/16 65/13	57/2 59/21 86/9 89/24	128/9 131/22 150/4	126/18 126/25 127/20	publication [5] 51/11
35/6 44/7 44/8 55/6	82/4 109/12 118/23	94/18 94/19 95/1	150/5 159/12	139/21 141/2 141/10	61/22 62/9 67/14
55/7 70/23 73/17 75/4	118/24	103/17 109/9 127/20	profession [1] 158/1	141/12 143/3	67/17
77/5 110/18 140/25	presentation [1] 61/18	136/1 138/15 147/22	professional [1] 40/22	proportion [6] 18/18	publications [8] 20/9
145/12 145/20 146/4	presentations [2] 46/8 68/17	149/21 155/22	professor [54] 1/16	32/25 111/6 123/18	41/25 48/22 66/24
153/24 159/21	presents [1] 20/19	problem [30] 7/5 19/5	1/18 3/4 9/3 12/11	154/3 154/10	67/3 67/6 72/2 77/13
possibly [6] 24/12	preserved [1] 140/24	24/1 24/2 27/17 39/15	25/10 34/7 34/11	prospective [1] 64/18	publicity [3] 102/4
65/4 97/13 123/10	press [2] 67/1 120/25	46/6 48/23 61/25 76/6	34/19 35/2 36/7 41/2	147/8	102/4 131/18
131/7 135/8	Preston's [1] 57/2	77/20 78/20 98/4	48/8 53/8 57/2 66/11	protection [3] 41/6	published [4] 59/8
post [9] 3/10 4/10	presumably [2] 90/15	99/21 102/11 103/18	68/2 68/6 69/12 70/6	98/7 159/8	59/12 59/16 143/20
4/23 5/5 5/12 99/6	90/17	120/4 126/19 127/23	70/25 71/10 71/19	protocol [4] 43/9	pubs [1] 9/7
99/8 114/25 121/19	presume [1] 36/15	136/5 137/6 142/3	73/24 74/7 77/1 85/9	111/12 111/20 132/21	PUPs [2] 27/2 108/18
post-war [1] 121/19	presure [1] 36/15	142/7 149/23 149/24	85/13 86/2 87/9 90/10	protocols [6] 19/12	Purcell [1] 50/18
posts [5] 1/23 2/2 2/9	pretty [7] 9/23 14/8	150/17 151/12 153/1	95/11 95/17 96/6 97/5	19/19 26/20 71/7	pure [1] 3/6
7/13 7/14	36/13 42/24 66/3	160/20 160/21	99/18 99/18 109/2	127/13 143/1	purity [3] 21/23
potassium [1] 55/2	113/13 122/19	problems [30] 8/4	112/16 113/6 113/6	provide [8] 16/16 41/5	140/11 141/17
potential [3] 64/6	prevalence [8] 49/9	9/19 12/23 29/8 29/17	117/10 126/10 133/8	45/25 52/23 59/25	purpose [5] 20/15
155/24 156/1	51/6 54/4 56/19 56/23	31/8 31/8 49/1 49/14	133/18 133/22 134/2	78/18 97/11 121/20	39/1 100/21 146/13
potentially [1] 38/7	72/11 75/7 154/2	50/7 54/8 83/14 83/18	147/17 149/4 160/7	provided [10] 7/11	146/14
practical [2] 121/6	prevalent [2] 57/21	99/1 100/11 101/21	161/7 161/8 162/9	7/15 40/7 40/18 53/2	purposes [1] 90/23
128/4	152/8	102/1 112/23 116/13	163/2	53/3 53/11 94/14	push [2] 137/19
practice [2] 20/24	prevent [1] 101/4	116/18 121/6 122/20	Professor Bloom [1] 73/24	114/25 145/16	141/14
40/10	preventative [1] 130/3	129/22 131/11 131/13	Professor Burnett [1] 9/3	providing [1] 100/7	pushing [1] 9/6
practising [2] 152/21	prevented [1] 162/4	132/14 137/6 146/24	Professor Hann [17] 1/18 12/11 25/10 34/7	provision [1] 80/18	put [20] 5/20 19/6
152/23	preventing [1] 104/19	153/13 159/3	48/8 66/11 74/7 90/10	PRSE0001556 [1] 34/8	23/19 41/12 41/14
practitioner [1] 5/18	previous [5] 68/7 70/3	procedure [1] 56/11	95/17 117/10 126/10	PRSE0002220 [1]	44/5 48/18 55/13
pre [11] 2/14 82/21	86/13 108/14 158/16	procedures [2] 19/12	133/8 133/18 134/2		65/12 75/12 85/5 89/5
82/23 83/25 84/7 84/9	previously [11] 9/12	143/12	147/17 149/4 160/7		
114/7 114/24 154/17	11/20 16/4 27/1 27/2	process [16] 40/4	Professor Hardisty [1] 112/16		
154/18 155/17	43/8 43/12 100/3	40/14 79/10 79/12	Professor Levinsky [1] 113/6		
pre-counselling [1] 83/25	100/15 106/7 108/10	81/7 82/3 85/5 85/24			
pre-registration [1]	Primum [1] 94/24	87/22 88/6 92/11 96/2			
	Primum non nocere [1] 94/24	114/4 131/3 144/2			
		144/18			
		processes [1] 43/1			

P	159/1 rammed [1] 124/2 ran [3] 15/1 34/4 134/17 randomised [1] 125/22 range [2] 19/14 161/16 rare [4] 108/20 122/8 152/9 162/5 rarely [5] 18/24 47/14 110/15 141/7 152/4 rate [5] 63/6 63/8 72/18 72/19 72/21 rather [10] 9/15 12/24 60/2 65/11 69/13 75/13 80/23 81/16 106/14 157/21 re [2] 26/21 88/25 re-emphasised [2] 26/21 88/25 react [1] 139/19 reaction [1] 140/2 reactions [1] 37/23 reactive [1] 81/18 read [10] 46/20 60/3 67/5 67/6 67/20 67/22 68/23 120/3 143/21 144/9 reader [1] 46/13 readily [1] 64/4 reading [4] 46/11 67/19 69/7 157/22 real [14] 5/17 9/11 21/5 27/17 57/21 57/24 83/14 93/23 106/15 106/16 130/1 130/5 130/5 130/7 realise [3] 6/25 7/2 64/16 realised [5] 7/1 89/25 89/25 105/7 155/19 realising [1] 139/4 really [50] 8/15 13/21 14/22 15/16 15/21 16/12 26/18 34/2 35/14 39/2 54/4 59/21 61/5 75/10 75/25 76/4 92/7 92/25 93/10 93/13 93/20 98/4 100/18 100/21 104/23 104/25 113/12 120/7 129/20 129/20 130/24 131/22 131/24 135/10 135/12 136/21 140/21 140/22 142/7 144/8 147/4 148/3 150/20 153/7 154/21 155/25 157/19 158/4 159/14 160/9 reason [13] 34/5 41/23 42/23 61/5	74/24 75/3 75/5 75/6 79/21 99/3 123/5 148/6 152/3 reasonable [1] 25/22 reasons [15] 6/4 12/16 23/2 37/21 84/2 84/6 85/25 87/14 88/22 96/1 109/16 118/16 141/2 146/17 160/19 reassuring [1] 55/17 rebuilding [1] 136/15 recall [30] 4/7 8/10 20/13 20/15 35/5 37/7 37/10 38/24 39/2 39/19 43/3 65/14 67/2 68/8 74/22 84/1 87/5 88/6 91/6 94/7 97/2 99/11 99/16 109/20 114/4 141/14 144/9 144/18 147/13 147/16 recalls [1] 85/7 receive [2] 108/11 133/19 received [8] 31/11 33/12 51/15 58/21 73/5 82/7 85/9 114/15 receiving [6] 27/22 49/21 74/6 85/7 89/9 99/24 recent [1] 73/13 recently [2] 125/24 136/11 recipients [2] 41/11 83/24 recognised [5] 58/24 125/23 130/12 133/10 138/11 recognition [1] 75/1 recollection [14] 31/3 36/6 42/17 74/6 74/8 81/21 82/7 82/11 82/13 82/13 85/15 88/3 144/3 146/12 recombinant [2] 4/21 127/22 record [3] 70/9 70/10 159/22 record-keeping [1] 159/22 recorded [1] 145/6 records [4] 146/9 146/10 146/22 159/3 recovery [1] 39/8 red [1] 150/9 reduced [3] 35/23 51/23 140/23 reducing [1] 152/18 reduction [12] 28/14 37/12 40/10 149/13 149/17 149/21 150/4 150/8 151/9 151/10	151/13 152/24 refer [5] 32/21 70/19 86/23 104/21 127/24 reference [20] 15/6 17/3 17/5 17/24 42/9 59/13 60/10 63/6 67/10 69/11 69/24 71/2 71/8 73/14 84/24 85/3 111/16 133/18 148/8 153/17 referral [3] 97/20 113/10 114/14 referrals [2] 98/1 98/2 referred [15] 12/15 32/18 53/16 56/25 58/19 62/20 63/15 66/11 67/10 68/18 96/23 115/22 126/6 144/20 147/17 refers [3] 42/10 73/13 98/21 reflected [1] 77/18 reflection [3] 89/12 93/19 93/20 refugees [1] 63/3 refuse [2] 120/16 121/3 refused [1] 31/6 regard [30] 6/20 6/20 8/14 8/23 12/8 13/4 16/21 17/3 17/13 19/6 29/10 30/12 40/10 41/21 42/3 43/5 45/2 45/10 81/6 82/18 83/10 83/15 91/17 104/19 105/15 120/17 123/1 124/4 127/10 143/14 regarded [9] 20/9 36/10 36/21 48/11 48/14 119/20 142/15 153/14 153/15 regards [1] 39/20 regime [1] 27/9 Regional [1] 3/25 regionalisation [1] 15/13 registrar [2] 7/6 54/25 registrars [2] 13/25 14/11 registration [1] 2/14 regret [3] 54/6 155/18 156/9 regrettable [1] 146/6 regular [7] 11/7 32/24 33/1 34/20 34/23 42/21 124/13 regularly [1] 7/23 reinforcing [1] 52/13 reiterate [1] 148/11 reiterated [1] 144/25 related [8] 57/11	61/16 104/15 104/21 113/2 114/18 128/23 142/23 relating [3] 42/6 62/10 78/3 relation [26] 6/23 8/12 20/13 24/16 25/12 31/2 38/25 41/19 42/15 42/19 44/12 47/10 53/14 56/25 63/20 70/8 80/19 89/13 106/2 107/10 107/22 107/24 146/9 147/8 147/8 154/14 relatively [12] 12/18 14/21 15/10 18/15 22/25 41/15 42/2 42/3 72/5 108/17 108/17 135/18 relearned [1] 157/19 relevant [4] 65/5 94/25 99/4 156/2 reliable [3] 29/19 87/13 155/2 relied [6] 9/12 17/14 20/7 33/22 33/23 113/20 relief [1] 8/9 rely [10] 8/18 10/22 11/3 28/25 29/5 33/21 40/11 79/23 90/19 122/4 remained [1] 4/10 remarkable [1] 148/12 remember [39] 4/9 6/11 20/11 31/25 32/25 37/3 38/4 50/15 57/13 59/20 61/22 67/11 68/10 68/15 78/5 88/8 94/17 95/24 97/6 100/18 102/15 104/14 105/7 105/22 106/12 107/16 107/19 108/2 108/15 110/2 110/10 111/18 112/2 112/23 115/8 126/24 151/2 153/5 156/17 reminded [1] 103/20 remotely [1] 1/7 removed [1] 7/14 renal [1] 10/25 reordered [1] 32/9 repeat [3] 109/4 130/15 154/24 repeated [1] 19/8 repeatedly [2] 6/9 117/25 replacement [1] 32/7 report [5] 74/21 91/1 120/4 123/20 145/7 reported [8] 70/12 70/24 71/6 71/25	72/25 73/1 78/25 138/17 reporting [4] 73/17 73/19 73/22 100/2 reports [2] 87/1 125/8 represent [1] 79/2 representations [1] 17/11 representative [1] 35/7 representatives [1] 133/10 representing [1] 18/3 Republic [2] 157/3 157/11 request [3] 31/5 31/6 38/24 requested [2] 74/17 82/16 requesting [1] 82/14 requests [1] 74/11 require [3] 89/2 105/3 126/24 required [13] 6/1 11/25 13/18 32/6 36/4 49/17 67/21 97/12 97/20 109/13 114/22 115/9 119/6 requirement [4] 32/5 128/10 158/24 159/11 requirements [2] 92/2 160/16 requires [4] 38/7 91/21 92/22 92/23 requiring [3] 30/8 88/16 116/14 research [14] 3/6 3/16 7/10 7/13 14/1 60/18 99/8 132/2 132/5 132/16 132/21 142/25 143/5 143/23 residual [1] 22/18 resistance [5] 7/18 10/14 14/19 15/15 64/9 resolved [1] 15/18 resort [1] 13/5 resource [5] 17/6 19/3 32/12 97/23 161/17 resourced [9] 5/19 15/1 17/8 97/25 98/6 114/2 135/19 136/6 136/11 resources [8] 9/2 13/3 16/21 16/25 59/24 126/19 139/11 158/8 respect [9] 5/16 13/17 23/11 25/25 47/7 98/4 102/21 107/9 159/21 respects [4] 117/16 140/14 147/15 156/21 respond [2] 15/23
Q	quality [2] 6/8 158/9 quaternary [1] 114/14 question [33] 15/21 17/2 17/17 27/8 53/7 53/10 53/12 56/13 57/14 57/16 58/9 78/15 78/17 78/21 80/10 80/23 81/13 82/1 82/2 90/12 93/1 94/8 108/19 113/10 116/8 117/23 117/24 119/24 145/23 147/17 150/15 153/8 154/14 Questioned [4] 1/17 149/8 163/3 163/4 questioning [1] 133/18 questionnaires [4] 24/10 41/17 147/3 158/21 questions [21] 1/15 5/9 53/5 53/9 59/1 78/9 79/14 79/16 81/18 110/20 117/10 133/9 133/12 134/3 149/4 149/6 149/10 155/12 155/16 156/11 160/5 quick [1] 54/22 quickly [2] 38/3 38/5 quiet [1] 129/21 quite [29] 7/12 13/6 14/16 15/21 16/12 18/7 21/4 21/8 22/20 30/17 33/9 43/22 66/18 66/20 78/4 80/5 80/9 88/8 88/10 104/8 110/14 111/24 112/20 118/6 140/9 143/20 147/12 154/15 157/8				
R	racked [1] 40/6 radiation [2] 7/25 122/11 radically [1] 127/17 radiology [1] 102/13 ragbag [1] 50/24 raise [2] 9/4 137/4 raised [1] 18/6 raising [2] 8/24 9/6 ramble [2] 117/24 160/11 rambling [2] 58/1				

R	160/24 161/22 rightly [1] 7/12 rigid [1] 102/7 rigorously [1] 158/22 rigours [1] 30/4 rise [1] 117/14 risk [21] 24/4 24/14 31/15 31/16 36/12 45/3 45/13 57/21 57/24 64/19 72/15 72/16 72/16 72/20 103/25 114/20 119/21 140/9 147/15 150/11 158/12 risk-averse [1] 158/12 risks [7] 43/25 44/13 60/2 78/3 78/24 79/2 81/17 river [1] 116/7 Rizza [1] 73/24 role [5] 64/2 112/19 115/3 115/18 138/19 room [1] 135/22 rooms [1] 80/4 rotas [1] 14/3 rotating [1] 13/24 rotation [2] 3/5 7/7 rotational [3] 2/9 2/22 47/11 roughly [3] 3/17 4/7 4/17 round [3] 3/2 17/2 30/2 rounds [1] 47/13 routine [5] 11/11 11/13 83/1 137/22 141/5 roving [1] 119/5 row [1] 23/6 Royal [31] 1/24 2/1 2/6 2/6 2/8 2/17 2/20 3/10 9/3 11/15 13/25 17/4 17/25 20/22 20/23 25/21 35/15 45/22 57/7 68/1 68/8 68/11 87/11 105/25 116/6 136/8 136/13 137/21 144/6 146/11 151/1 Royal Free [19] 2/6 2/8 2/17 2/20 11/15 17/4 17/25 20/22 20/23 25/21 45/22 57/7 68/1 68/8 68/11 116/6 136/13 137/21 151/1 Ruchill [4] 85/1 85/4 104/10 105/4 rules [1] 146/20 run [9] 8/21 25/5 34/3 79/20 102/25 113/12 122/16 122/18 159/25	running [2] 8/3 116/18 Ryan [1] 130/20 S sadly [2] 76/22 116/17 safe [5] 29/15 36/22 41/21 41/24 42/1 safer [2] 41/15 150/19 safest [1] 125/11 safety [5] 5/25 6/1 6/20 21/5 42/3 SAGE [1] 129/16 said [46] 15/3 15/8 20/1 20/15 22/11 24/17 33/25 35/24 36/24 46/6 49/25 51/20 57/16 58/10 58/11 63/11 65/8 70/10 72/24 74/9 75/18 81/15 83/1 84/7 88/4 90/25 93/16 101/2 102/8 103/9 103/10 108/16 109/4 115/8 129/1 135/11 136/18 140/12 141/10 146/21 149/11 150/10 152/11 153/20 155/25 160/13 said: [2] 24/23 50/21 said: don't [1] 50/21 said: yes [1] 24/23 sake [1] 83/23 same [11] 10/11 38/11 55/21 76/11 86/3 90/4 107/24 108/1 120/13 144/11 144/14 sample [5] 55/11 86/12 86/13 86/14 155/9 samples [14] 38/20 38/25 45/2 55/12 82/24 82/25 83/5 83/7 84/9 86/13 90/14 90/16 103/24 155/4 sarcoma [2] 76/14 105/8 satisfactory [1] 123/3 saw [8] 15/6 19/5 21/10 21/21 37/23 42/13 111/5 161/18 say [69] 3/12 3/18 9/21 10/8 11/17 12/1 18/23 31/15 33/3 38/19 39/12 40/20 41/13 44/1 44/21 46/3 48/3 50/16 53/15 54/23 55/10 56/1 59/6 59/7 61/9 71/19 72/8 74/1 74/25 82/12	85/25 87/20 92/14 94/22 97/25 102/20 103/4 103/18 117/6 117/17 118/11 123/4 123/24 125/2 125/15 126/12 127/4 128/12 129/3 129/19 130/24 131/25 132/24 133/6 134/24 135/3 136/5 140/6 141/9 142/1 148/18 155/8 157/18 158/10 160/9 160/13 160/22 160/23 161/14 say: [1] 155/4 say: have [1] 155/4 saying [12] 1/9 37/3 41/3 58/4 82/22 89/17 89/20 100/19 129/24 151/2 153/5 153/18 says [7] 16/23 25/14 29/6 35/21 54/25 73/20 83/20 scanning [1] 106/14 scans [1] 28/25 scare [1] 31/15 scared [1] 143/14 scene [1] 19/8 sceptic [1] 26/5 sceptical [1] 38/10 scepticism [1] 75/24 scheduled [1] 88/2 school [5] 28/16 101/23 101/24 112/9 116/9 schools [4] 101/21 101/21 101/22 101/25 science [1] 129/11 scientific [6] 12/25 39/21 40/19 45/21 46/2 122/3 scientists [3] 122/9 122/10 132/11 score [1] 22/2 Scotland [20] 6/6 9/5 10/8 10/9 13/9 15/3 15/6 15/14 16/6 24/11 28/11 41/19 94/9 127/19 136/20 142/17 147/10 147/14 147/16 154/4 Scottish [5] 15/8 34/15 35/3 70/2 135/2 scratches [1] 143/16 screen [1] 34/10 screened [1] 23/14 screening [1] 125/25 seamless [1] 119/5 second [11] 26/19 35/16 40/20 51/9 59/12 60/11 61/8 73/18 75/10 75/12 93/15	secondary [3] 45/12 112/9 116/9 secondly [4] 37/4 37/24 128/1 141/4 secretarial [1] 96/13 secretions [1] 64/5 sector [1] 37/20 see [32] 1/18 11/19 11/24 13/20 26/4 26/15 34/2 34/9 34/11 34/14 34/17 34/22 35/19 36/8 42/9 62/11 62/14 62/19 63/5 63/14 64/14 69/22 70/9 71/2 72/24 73/8 73/18 73/23 81/9 113/15 152/3 155/6 seeing [3] 106/19 122/17 159/6 seek [1] 90/12 seeking [1] 53/4 seem [4] 18/4 82/21 101/9 137/19 seemed [6] 36/2 102/5 121/11 122/18 151/6 161/14 seen [11] 11/20 13/22 30/15 32/16 33/21 53/17 57/5 69/13 93/24 107/21 113/14 self [15] 22/7 25/6 25/7 45/12 94/15 112/9 116/9 126/8 126/12 126/16 127/18 151/8 151/22 152/17 154/15 self-critical [1] 154/15 self-sufficiency [10] 22/7 25/7 94/15 126/8 126/12 126/16 127/18 151/8 151/22 152/17 self-sufficient [1] 25/6 self-therapy [2] 45/12 116/9 self-treating [1] 112/9 seminal [2] 46/22 47/6 seminars [1] 68/13 send [2] 46/21 134/14 sending [1] 88/11 senior [5] 7/6 13/24 14/11 32/10 93/2 sense [4] 16/13 17/25 140/14 153/2 senses [1] 104/8 sensitive [2] 83/13 155/7 sent [6] 22/20 42/11 73/11 74/12 134/21 157/23 separate [4] 2/4 2/5	29/10 96/16 separately [2] 29/9 45/23 series [5] 46/16 63/8 66/24 136/23 155/11 serious [15] 18/23 21/11 21/12 27/16 27/20 48/14 53/20 56/2 56/7 57/25 58/8 131/7 152/8 152/9 154/9 seriously [4] 5/19 93/24 123/6 131/2 seriousness [1] 93/23 seroconversions [1] 108/7 seroconverted [1] 90/23 serology [1] 83/15 Serratia [1] 150/13 service [24] 4/24 5/7 5/10 5/13 7/11 7/15 8/13 8/14 9/12 10/9 15/9 15/22 16/9 16/17 22/1 24/19 25/4 34/16 82/10 94/13 115/23 125/6 140/15 156/22 services [8] 9/9 14/4 17/1 24/21 24/23 82/20 83/19 131/9 sessions [4] 138/6 138/7 138/9 138/9 set [16] 8/1 8/17 11/12 68/12 71/22 73/16 73/19 79/8 79/8 79/21 80/11 82/8 116/4 120/19 121/18 121/20 setting [2] 8/20 9/21 setup [1] 104/24 seven [4] 2/14 3/18 5/22 91/10 seven years [1] 91/10 several [5] 32/5 44/23 65/19 88/22 109/16 severe [7] 10/20 11/10 11/21 29/22 30/8 109/8 112/3 severes [1] 108/21 severities [1] 43/25 severity [3] 11/22 63/18 64/23 sex [1] 63/2 sexual [1] 45/10 shakes [1] 30/5 shall [1] 48/3 shame [1] 158/5 share [1] 5/6 shared [2] 66/9 71/21 sharing [1] 66/14 she [16] 42/14 45/17 45/19 45/21 69/1 80/6
----------	---	--	--	---	---

(61) respond... - she

S	single [1] 18/10 sink [1] 124/24 sir [13] 2/15 47/18 48/4 51/12 95/7 120/21 133/8 145/2 149/7 149/8 160/11 162/8 163/4 Sir Brian [1] 160/11 Sir David Weatherall [1] 2/15 Sir Ian Kennedy [1] 120/21 Sir John Lilleyman [1] 51/12 sister [10] 33/25 43/22 45/16 80/2 80/5 98/15 100/7 101/25 102/20 139/24 Sister Murphy [9] 33/25 43/22 45/16 80/2 80/5 98/15 100/7 101/25 139/24 site [1] 6/16 situation [7] 10/8 32/3 34/3 78/19 129/8 156/1 156/14 six [11] 2/4 3/18 3/22 5/4 5/7 19/23 50/10 51/23 63/15 71/3 88/21 size [2] 15/10 64/9 skid [1] 23/6 skilled [2] 93/21 161/21 skills [2] 138/2 139/7 sky [1] 150/21 sleepy [1] 29/2 slight [2] 58/5 72/7 slightly [4] 82/15 95/8 113/17 159/1 slow [4] 10/11 10/12 15/3 15/23 small [11] 15/10 31/17 32/25 33/11 33/12 43/17 72/5 108/17 111/23 117/19 125/23 SNBTS [17] 21/17 25/13 34/21 38/18 41/5 41/14 42/4 66/2 85/11 94/19 107/11 109/24 139/20 140/15 141/18 145/12 147/7 so [178] so-called [3] 40/8 45/1 127/14 social [22] 7/17 7/18 43/23 79/9 80/7 91/23 93/4 96/24 97/1 97/14 98/16 100/5 100/8 114/2 118/20 137/10 138/19 138/22 139/14	145/25 146/7 148/23 society [13] 44/4 44/6 47/3 47/7 52/17 79/1 79/17 84/13 98/22 99/2 101/15 101/20 137/18 solid [7] 12/25 14/14 14/17 15/20 47/16 99/22 139/14 solution [1] 109/15 solved [4] 24/1 24/1 127/23 128/24 some [77] 4/8 5/9 5/24 7/17 11/7 11/25 14/12 14/16 16/3 17/25 21/5 22/17 22/18 24/9 26/2 27/7 27/23 28/5 28/10 31/11 32/21 33/2 34/25 39/25 41/11 43/15 45/6 49/16 53/8 55/17 59/12 59/13 59/22 62/21 70/11 77/12 87/3 89/19 94/24 97/3 101/8 101/21 101/22 106/6 109/17 110/20 112/22 116/6 116/21 116/25 117/10 118/3 118/22 123/5 124/3 128/1 128/8 128/11 128/18 128/19 128/22 128/23 129/9 129/15 129/23 132/7 133/8 135/25 136/15 142/17 143/21 144/10 151/3 151/3 152/3 152/23 154/12 somebody [6] 56/8 84/16 128/22 139/7 146/18 161/11 something [37] 8/15 12/3 28/17 32/19 46/12 52/8 54/2 55/4 60/10 66/4 66/9 68/23 72/17 79/12 88/1 89/17 89/22 89/22 91/20 92/24 92/25 103/13 124/4 124/18 127/2 129/5 137/23 138/12 139/9 141/25 150/1 150/18 153/9 154/3 154/5 154/15 156/14 sometimes [19] 24/13 24/25 29/23 33/20 43/23 44/25 46/21 52/11 78/10 80/13 91/5 91/14 92/22 121/1 143/11 146/16 147/1 148/23 160/12 somewhat [5] 5/1 118/24 133/15 137/14	142/15 somewhere [2] 1/7 57/10 son [2] 94/5 94/5 son's [1] 89/10 soon [10] 22/1 25/6 28/16 59/20 74/5 78/13 131/3 150/7 150/23 155/9 sorry [33] 1/4 4/2 12/7 16/6 53/6 54/10 57/13 58/1 71/14 72/7 74/16 76/20 78/5 84/24 85/10 86/19 100/18 103/6 104/3 107/16 108/1 109/6 111/13 119/16 132/23 136/17 139/8 144/24 149/2 152/19 154/1 159/1 159/14 sort [18] 18/9 21/12 44/18 55/5 55/7 93/22 101/11 117/1 122/16 128/19 129/9 129/16 138/24 139/5 145/10 146/20 151/3 155/16 sorted [2] 8/1 137/24 sorts [6] 42/22 68/12 81/11 87/13 114/17 146/16 sought [2] 82/9 106/2 Soumik [18] 34/8 34/13 35/16 38/15 42/7 43/7 62/8 62/13 63/4 63/13 63/22 64/14 69/17 69/21 70/5 73/7 98/18 99/14 sound [2] 38/11 72/7 sounds [2] 79/6 100/19 source [1] 86/3 sources [2] 58/19 129/7 south [1] 116/6 southern [1] 157/2 space [1] 8/16 speak [4] 43/21 92/9 93/9 98/15 speaking [2] 42/3 151/2 special [2] 35/9 160/16 specialisation [4] 15/13 60/20 115/12 136/19 specialised [1] 15/4 specialist [5] 10/13 16/19 16/20 16/21 114/10 specialists [5] 10/4 113/21 118/15 118/15 137/12	specialties [1] 14/21 specialty [1] 14/21 specific [18] 40/19 42/20 68/10 70/17 74/8 83/13 91/21 91/22 92/14 97/23 98/16 112/19 113/22 117/11 133/9 146/14 148/6 155/6 specifically [3] 25/11 92/2 145/16 speculate [1] 39/2 spell [1] 60/1 spend [9] 3/21 4/3 7/7 9/6 19/2 52/12 59/1 141/16 155/18 spent [11] 3/3 3/6 3/17 3/25 4/2 4/17 5/7 18/18 84/19 91/10 124/7 spiking [1] 40/8 spills [1] 45/15 split [1] 17/10 spoke [6] 26/24 43/15 119/10 146/2 146/3 153/15 spoken [2] 99/20 100/1 sponsored [1] 52/18 spontaneous [2] 51/20 87/25 sports [1] 143/14 spread [1] 64/4 St [1] 116/7 St Thomas' [1] 116/7 staff [14] 1/13 5/20 6/22 8/6 44/12 45/25 46/22 97/12 102/12 123/1 123/12 123/19 134/25 136/17 staffing [3] 6/24 7/9 13/4 stage [25] 3/12 22/17 25/9 27/7 33/3 42/19 42/25 43/14 43/15 49/3 49/19 63/16 68/3 72/12 77/12 87/8 99/25 104/20 105/5 105/6 106/14 112/4 114/23 146/17 154/6 stages [1] 87/6 standard [6] 11/14 19/11 19/18 20/23 109/7 114/22 staph [1] 150/13 start [3] 105/18 131/1 161/16 started [9] 8/24 13/19 28/15 48/12 60/17 105/22 135/24 136/14 150/23 state [2] 69/14 70/23	stated [3] 145/13 145/18 160/20 statement [23] 10/3 15/3 21/21 25/14 25/25 28/5 44/11 48/10 65/8 66/12 74/9 86/24 95/5 96/23 121/10 122/24 126/11 127/24 128/12 129/2 144/10 144/25 145/14 States [1] 73/1 status [1] 77/18 stayed [1] 116/18 step [2] 19/21 139/1 steroids [1] 30/9 stickers [1] 103/23 Sticking [1] 103/23 sticks [1] 124/4 stigmatisation [2] 102/22 103/16 stigmatised [2] 104/5 117/8 still [49] 9/10 18/13 23/11 23/23 23/25 37/12 39/13 40/3 44/25 67/22 67/25 68/2 72/5 77/8 82/20 83/18 109/17 122/12 122/14 123/3 123/5 123/15 124/3 124/20 125/4 125/4 125/10 125/13 125/23 126/4 128/18 130/8 130/16 132/13 133/3 138/15 142/3 144/4 145/2 147/1 147/22 149/23 150/9 150/11 150/17 151/23 157/6 157/17 158/10 stimulated [1] 156/11 Stirling [4] 60/12 97/8 100/10 143/7 Stone [1] 99/18 stop [2] 41/24 141/2 stopped [4] 22/15 60/4 124/24 124/25 storage [1] 122/8 store [2] 10/1 135/21 stored [3] 83/1 90/14 90/16 storm [1] 5/15 story [3] 61/17 118/10 125/17 Street [35] 2/6 2/16 4/11 4/15 9/25 10/18 15/25 20/22 24/22 49/15 91/24 100/17 104/24 105/1 106/4 106/25 107/3 110/21 111/1 112/11 112/15 113/7 114/5 115/21 115/22 116/24 117/12
----------	--	--	--	--	--

S	suffered [1] 104/5 suffering [4] 70/12 90/2 90/9 161/3 sufficiency [10] 22/7 25/7 94/15 126/8 126/12 126/16 127/18 151/8 151/22 152/17 sufficient [5] 25/6 40/4 58/13 107/22 124/1 suggest [5] 18/4 32/16 87/2 133/12 151/22 suggested [5] 64/2 133/9 134/3 142/16 142/17 suggestion [2] 35/22 36/8 suggestions [1] 133/19 suitable [1] 45/5 summaries [1] 65/2 summarising [1] 70/8 summary [4] 56/21 56/22 69/13 71/20 summing [1] 57/19 summoned [2] 103/5 103/7 Sunday [1] 78/25 sunshine [1] 162/5 supplies [1] 33/18 supply [13] 22/12 22/25 26/17 42/11 140/24 141/11 147/10 151/11 151/15 151/15 158/14 158/17 158/19 support [14] 52/21 52/22 96/25 97/12 97/19 98/5 98/14 99/23 100/8 100/8 114/25 134/14 145/15 145/22 supported [3] 8/3 13/3 148/16 suppose [4] 39/21 114/23 117/17 156/7 supposed [5] 13/15 29/3 54/12 54/13 54/17 Supreme [1] 158/4 sure [24] 23/5 26/16 31/7 37/21 43/14 47/16 49/3 56/9 59/19 66/3 66/23 76/5 88/10 88/20 88/24 99/19 117/7 129/17 141/6 143/22 144/12 146/14 158/25 159/19 surgeons [2] 15/19 124/13 surgeries [1] 103/3 surgery [1] 125/12	surgical [2] 124/25 125/12 surprised [2] 13/6 149/19 surrogately [1] 142/18 surrounded [1] 121/8 survived [1] 30/11 suspected [2] 74/21 74/23 swabs [1] 140/5 Sweden [2] 26/7 127/6 switch [1] 139/20 switching [2] 25/13 28/12 Sword [2] 52/5 56/8 sworn [2] 1/16 163/2 symposium [3] 60/7 60/11 62/10 symptomatic [1] 51/4 symptoms [3] 29/1 64/8 106/20 syndrome [5] 62/16 62/25 73/22 104/15 113/2 syndromes [1] 105/9 synovectomies [1] 32/6 system [6] 11/8 11/12 32/17 73/17 108/8 161/17 systematic [1] 58/20	T table [1] 145/8 take [25] 1/14 32/21 35/3 38/4 38/20 43/7 46/19 47/19 47/21 48/2 53/12 54/17 64/16 73/4 91/21 92/12 93/22 95/9 96/20 102/13 108/8 132/23 133/16 133/21 154/11 taken [12] 9/15 26/7 43/11 71/19 99/8 101/23 107/7 123/5 127/20 129/18 145/6 162/3 takes [5] 16/22 37/13 131/25 149/25 160/16 taking [8] 5/13 9/15 10/16 37/18 38/25 79/25 131/1 143/18 talk [15] 25/7 27/5 27/6 29/8 47/22 47/24 48/1 52/25 66/2 89/21 93/5 93/18 126/11 139/3 139/25 talked [3] 23/6 28/17 160/18	talking [10] 37/14 81/24 91/13 111/13 124/1 124/17 144/22 149/10 149/11 149/13 target [1] 127/8 tasks [1] 19/10 taught [1] 53/5 taxing [1] 158/18 TDs [1] 36/5 team [10] 93/3 93/3 113/20 113/25 114/12 119/4 122/5 123/21 138/15 161/21 teams [1] 138/1 technical [1] 148/24 technicians [1] 122/10 techniques [10] 37/12 149/13 149/17 149/22 150/4 150/8 151/9 151/10 151/13 152/24 Tedder [4] 87/9 117/3 155/6 155/10 television [1] 23/5 tell [18] 17/16 21/18 49/8 54/13 54/18 55/3 56/9 56/14 71/13 76/10 84/16 86/15 91/8 93/11 123/23 149/15 157/10 157/20 telling [3] 85/8 87/22 156/1 ten [7] 46/17 70/14 72/25 86/18 87/1 126/1 144/11 tended [2] 5/17 65/20 tendency [3] 15/19 28/14 110/12 tends [2] 32/16 110/11 tense [2] 77/5 153/22 term [9] 50/22 53/21 56/2 94/1 98/25 100/4 100/12 100/16 119/7 terminate [1] 31/24 terminated [1] 26/1 terms [19] 2/20 8/6 8/10 12/13 21/15 24/25 31/20 33/13 43/8 45/21 59/5 64/22 70/2 85/5 97/18 128/4 134/5 134/19 139/20 terrible [6] 17/15 102/25 132/25 156/1 161/3 161/3 tertiary [1] 114/14 test [22] 50/13 54/14 82/21 82/23 83/12 84/7 84/9 86/4 87/13 87/18 114/3 114/7 114/24 114/25 131/12 142/19 154/17 154/18	155/1 155/4 155/9 155/17 tested [7] 23/15 82/4 83/21 84/10 86/14 115/1 142/11 testing [24] 6/13 39/14 83/10 83/11 83/11 83/25 85/24 86/3 87/1 87/3 87/5 87/8 87/19 90/15 95/19 95/22 114/4 114/23 134/7 134/13 134/19 144/2 144/18 155/5 tests [10] 20/20 20/20 39/4 40/2 50/10 84/16 86/9 106/10 106/19 144/16 texts [2] 20/12 59/5 than [47] 5/1 10/10 12/5 12/14 17/22 18/24 19/19 37/23 40/5 41/15 48/11 49/23 50/10 51/21 52/11 53/1 58/23 60/2 65/11 69/13 74/15 75/13 79/6 80/12 80/23 81/16 86/20 87/7 88/4 88/13 93/21 93/23 96/20 99/23 100/24 105/11 106/14 110/4 115/15 117/15 127/11 131/17 135/9 150/5 154/4 157/21 159/22 thank [16] 1/20 34/13 38/17 43/7 48/4 53/8 59/19 95/12 133/6 133/23 153/16 160/10 161/6 161/7 162/2 162/7 thankfully [6] 8/19 40/12 104/23 114/7 151/13 153/11 thanks [1] 17/7 that [872] that's [37] 1/10 2/19 4/13 24/24 29/9 31/6 33/12 39/10 44/21 53/6 55/12 59/4 59/11 64/20 66/3 74/4 78/4 78/20 89/4 93/19 101/17 107/19 111/8 117/2 118/19 119/6 119/13 119/16 120/25 121/15 124/2 124/6 129/17 146/5 149/19 150/1 156/8 their [41] 11/16 15/19 22/25 29/13 31/4 31/6 33/6 33/17 38/21 40/24 44/7 49/16 77/3	79/4 79/9 79/18 79/18 80/19 81/4 84/5 87/23 87/24 88/1 91/9 91/14 91/15 94/5 94/5 99/4 100/7 102/18 104/8 105/24 113/9 115/15 117/7 123/25 123/25 140/6 142/12 143/16 theirs [1] 31/9 them [83] 11/19 11/24 11/25 13/21 17/16 17/18 21/5 22/2 22/2 31/7 31/11 31/14 31/15 31/18 31/19 32/25 32/25 33/8 34/25 35/8 37/8 43/16 43/24 44/2 44/5 44/5 44/6 46/17 46/18 46/21 46/22 47/10 52/5 53/17 55/5 55/14 78/15 78/19 80/13 81/9 81/9 81/17 84/12 87/21 89/15 92/21 93/11 94/22 97/7 97/11 101/4 101/10 101/16 102/1 102/13 102/16 103/20 106/7 106/8 109/11 111/4 112/5 113/15 115/24 116/8 116/21 118/3 120/17 122/10 124/2 130/7 132/19 132/20 133/12 139/8 139/25 140/7 140/12 141/10 145/20 148/5 155/4 160/14 themselves [9] 20/4 20/12 49/12 77/19 91/8 91/8 137/7 146/1 146/1 then [63] 1/14 2/17 3/10 4/14 4/17 4/23 5/3 5/6 12/4 21/7 24/2 35/9 35/20 46/20 48/18 50/10 51/8 56/6 57/14 58/9 60/6 63/4 63/11 63/13 63/21 63/24 64/1 64/11 64/12 67/4 70/19 71/2 71/7 71/8 73/4 74/3 74/18 81/19 81/20 82/2 85/8 85/19 90/5 90/18 97/18 104/7 104/21 109/14 113/14 116/3 124/18 133/17 134/10 134/13 137/24 142/24 145/24 148/8 150/8 150/25 152/22 155/8 155/11 theories [2] 62/2 121/5 theory [1] 86/20
----------	--	---	--	---	--	--

T	106/11 106/19 108/22 108/23 112/1 112/5 112/7 112/8 113/13 114/1 115/2 115/24 115/25 116/12 116/15 116/21 117/2 117/5 117/8 117/20 117/20 117/21 117/22 118/22 118/23 118/23 121/5 122/5 122/7 122/9 123/12 123/14 123/24 125/7 125/13 127/12 127/13 127/13 128/19 135/11 136/6 139/1 139/24 140/11 143/13 143/14 143/15 143/16 144/14 148/15 149/23 149/24 152/3 152/13 152/14 155/23 156/7 156/8 156/9 156/10 159/4 159/14 159/20 They've [1] 117/19 thing [27] 2/22 18/9 42/1 44/21 83/12 88/19 91/4 93/22 102/5 125/14 130/24 132/16 135/18 138/20 139/11 140/22 148/11 152/6 152/9 152/9 152/12 156/3 159/9 159/14 160/22 160/23 161/3 things [51] 7/25 18/12 37/2 37/13 46/9 52/21 68/12 81/11 91/22 96/21 98/10 101/7 102/23 105/8 114/17 117/20 121/5 121/18 122/8 122/11 123/16 124/23 125/10 125/25 127/4 127/17 128/8 128/11 129/19 132/12 133/3 135/5 135/9 135/12 135/14 136/5 137/3 137/8 137/9 140/10 140/22 143/13 146/25 147/2 150/24 155/6 158/15 159/3 159/20 160/9 160/12 think [135] 1/23 2/16 4/17 8/6 12/18 15/8 16/11 16/13 16/14 17/9 18/2 19/25 21/17 22/9 22/13 24/20 25/1 25/14 27/12 27/24 28/5 28/10 28/17 33/9 33/11 35/8 36/20 37/17 40/11 41/2 44/17 45/5 48/23 50/11 51/14 53/19 56/15 57/1 57/5 57/8 57/10 57/10 60/9	61/15 62/13 62/19 64/21 65/12 66/1 68/23 68/25 69/1 69/18 71/23 72/10 72/23 74/16 75/14 75/16 75/22 77/10 78/21 78/22 85/4 86/24 87/20 88/4 88/15 89/14 90/10 91/3 94/8 94/8 94/22 98/12 98/12 99/13 99/18 99/19 100/9 100/23 101/15 104/13 105/6 107/12 108/22 109/2 109/22 110/22 111/7 114/9 115/8 119/1 122/22 127/12 128/13 128/14 129/20 130/16 131/21 132/16 132/17 134/14 134/23 135/8 136/14 136/18 139/16 142/14 142/16 142/24 143/9 143/25 144/9 144/19 144/20 146/6 147/18 147/19 148/6 149/11 150/19 151/20 153/4 153/17 153/20 154/22 155/20 155/22 156/13 157/13 159/18 160/13 160/15 161/19 thinking [4] 21/19 65/3 106/13 152/14 thinks [1] 79/3 third [3] 30/2 73/20 133/1 this [180] Thomas' [1] 116/7 those [69] 2/2 2/9 4/3 4/4 7/13 7/25 9/19 16/18 19/13 19/22 23/14 23/16 25/24 26/14 30/14 31/2 35/4 36/18 39/10 39/19 45/14 45/21 46/20 50/5 50/14 54/23 61/13 61/16 62/1 62/21 64/16 65/9 65/10 65/11 65/20 66/16 66/20 67/14 71/23 80/8 80/14 85/19 86/9 86/12 90/16 105/23 110/3 116/15 116/15 116/17 116/17 117/1 119/13 122/15 123/24 125/2 125/19 130/16 137/6 140/10 140/19 141/3 143/18 144/16 147/4 149/4 155/16 160/5 160/18 though [3] 77/14 79/4	112/5 thought [10] 19/6 59/21 61/13 76/18 77/1 78/2 96/19 148/4 151/14 153/23 threat [3] 7/12 131/6 132/15 threatened [2] 12/21 12/22 threatening [4] 30/6 54/19 92/18 92/19 three [11] 3/3 4/17 8/1 23/25 27/25 61/20 67/11 70/19 88/4 89/21 92/15 three weeks [1] 89/21 three-year [1] 92/15 thrombocytopenia [1] 112/24 through [25] 5/21 26/19 32/10 35/12 43/1 59/2 79/20 81/9 87/10 89/17 101/18 125/5 125/7 131/18 131/20 135/23 137/25 138/4 147/6 151/25 157/22 158/3 158/3 158/18 161/5 throughout [14] 3/18 6/5 9/23 45/16 67/23 92/10 93/7 93/16 99/17 124/19 125/15 140/16 155/25 161/24 throw [1] 96/6 thrust [2] 75/9 81/15 thus [3] 38/3 99/5 108/11 tiers [1] 17/10 tight [1] 160/1 tightrope [1] 158/17 time [132] 1/10 2/16 3/5 3/7 3/19 3/25 4/4 4/8 5/2 9/6 9/24 10/3 13/2 13/14 14/15 14/18 14/23 14/24 15/7 17/1 18/18 18/25 19/1 19/2 19/16 20/1 20/5 20/6 23/1 23/7 23/18 25/2 25/11 26/6 26/15 26/23 29/12 29/24 32/20 33/17 36/7 37/17 38/8 38/11 39/23 40/15 40/21 43/18 44/9 47/19 48/12 49/14 49/15 49/24 52/12 59/1 59/12 61/8 62/4 66/8 67/18 67/25 68/24 69/7 71/12 71/17 71/22 72/1 73/5 74/25 76/1 76/25 77/11 77/16 77/18 79/5	79/12 84/4 84/19 86/19 87/19 90/5 91/12 92/20 95/6 95/7 95/11 96/12 97/17 98/2 98/2 99/24 100/22 100/22 102/9 103/25 109/14 110/17 111/2 111/10 111/13 122/1 124/17 125/5 125/5 129/16 129/22 130/23 132/8 132/12 132/22 133/16 133/16 135/20 136/12 136/20 137/15 138/11 138/22 140/24 143/6 144/6 144/15 151/5 152/5 155/13 155/18 155/19 156/6 157/14 157/21 159/20 times [7] 22/18 23/4 30/14 99/20 130/14 139/18 158/12 timing [1] 41/19 to [992] today [4] 44/25 83/20 126/6 149/21 toes [1] 139/1 together [5] 51/12 80/3 115/19 128/21 161/22 told [18] 6/4 22/9 25/17 34/19 35/2 45/19 52/4 57/9 57/11 58/15 64/25 85/13 88/7 108/23 153/16 154/16 161/25 162/6 tolerated [3] 29/5 37/22 115/11 tolerising [1] 127/15 tomorrow [3] 149/21 162/8 162/10 too [11] 9/6 25/8 33/23 60/22 100/10 111/17 118/21 125/23 126/14 158/16 160/19 took [24] 2/25 3/10 4/23 5/5 5/12 14/17 14/23 14/24 15/16 16/7 19/10 19/16 19/22 26/6 29/11 29/24 33/24 61/2 85/13 85/18 94/23 96/19 104/8 148/15 top [6] 29/15 64/6 71/1 73/25 99/12 138/10 topic [5] 38/14 47/18 61/1 67/4 95/8 totally [1] 65/21 touch [1] 42/21 tough [1] 78/10 towards [4] 15/12	119/10 136/22 138/21 tower [1] 10/7 town [1] 138/9 traceability [3] 128/9 158/24 159/12 tragedies [1] 103/23 tragedy [4] 123/17 128/7 132/25 161/1 train [1] 2/23 trained [9] 9/17 10/17 50/19 91/19 91/19 118/13 118/17 120/21 138/3 trainee [6] 5/20 6/22 28/13 46/22 123/12 137/14 trainees [2] 7/7 14/12 training [36] 2/13 2/24 3/21 3/23 3/24 7/14 14/10 14/10 14/16 44/12 44/14 44/17 44/18 45/9 46/3 46/5 46/6 47/17 91/11 91/21 91/22 91/24 91/25 92/14 113/22 118/21 121/16 123/1 130/5 130/16 130/18 132/4 134/17 137/11 137/12 152/22 tranexamic [2] 21/2 111/25 transaminases [1] 50/9 transcripts [1] 65/1 transfer [4] 57/22 104/9 116/15 144/13 transferred [2] 115/25 146/11 transferring [1] 45/11 transfusion [37] 3/25 4/24 5/7 6/17 21/25 23/10 23/25 24/22 25/4 30/1 34/15 39/5 44/13 50/2 67/20 70/21 82/19 83/18 121/11 122/13 122/14 123/2 123/10 123/20 124/9 125/6 125/6 125/20 131/9 134/11 140/15 147/2 149/22 154/7 156/22 158/11 158/11 transfusion-transmitt ed [3] 44/13 50/2 122/13 transfusions [1] 123/7 transition [1] 112/8 transitional [2] 116/5 116/16 transitioning [1] 112/6
----------	---	--	--	---	---

(64) therapist - transitioning

T	108/3 110/19 110/25 113/9 115/3 116/14 117/15 119/10 119/20 121/2 121/3 127/3 127/16 140/20 149/11 151/4 treatments [4] 43/25 45/14 115/5 127/15 trial [2] 42/15 138/8 trials [8] 37/7 37/10 42/19 125/18 125/22 125/22 126/2 126/4 Tribunal [3] 157/14 157/24 158/7 tried [8] 12/24 19/4 24/20 30/24 35/12 55/5 89/5 110/16 trimoxazole [1] 105/19 trivial [1] 101/9 true [3] 46/3 78/4 87/20 truly [1] 74/15 trust [1] 79/13 truth [3] 76/24 93/11 93/12 try [7] 8/17 28/9 78/23 88/20 101/25 140/17 145/12 trying [4] 41/13 85/5 99/17 135/5 Tuddenham [3] 3/4 68/2 68/6 Tuesday [1] 1/1 tumour [1] 15/20 tumours [8] 7/22 12/25 14/14 14/17 47/16 99/22 120/14 139/15 tune [2] 1/9 1/10 turn [2] 5/9 62/13 turned [8] 50/12 51/10 51/13 76/18 87/20 99/3 115/2 154/13 twice [2] 11/24 80/13 two [33] 3/3 13/15 27/25 37/2 37/21 51/8 51/14 51/15 51/23 54/7 61/20 63/13 67/10 68/7 70/4 71/4 71/5 87/6 89/21 107/12 110/3 111/18 117/1 125/24 127/24 129/19 135/14 140/22 141/2 141/15 156/20 160/9 160/12 two years [1] 68/7 type [10] 24/3 27/16 27/16 92/16 113/2 124/22 138/9 147/25 147/25 148/25 typical [2] 36/13	63/12 typically [3] 88/5 89/8 115/20 U UCL [4] 87/10 116/19 116/20 116/22 UK [12] 13/2 22/6 71/5 107/1 116/1 121/25 123/23 126/22 127/16 131/15 140/16 150/6 UKCCSG [1] 14/24 UKHCDO [5] 16/10 17/10 74/25 147/18 148/19 UKHCDO's [1] 57/6 ultimately [1] 59/25 Ultraviolet [1] 151/4 unable [1] 126/23 uncertain [3] 51/7 52/4 56/24 uncertainties [2] 56/16 57/15 uncertainty [10] 49/1 49/9 49/13 50/8 51/24 53/15 56/20 58/2 131/16 156/3 unclear [5] 6/17 30/15 89/2 120/25 143/19 uncommon [2] 76/14 109/11 unconscionable [2] 77/21 84/3 under [6] 5/19 17/8 27/9 97/25 98/6 102/19 under-resourced [4] 5/19 17/8 97/25 98/6 understand [17] 16/8 19/13 36/23 41/2 41/4 53/15 56/17 57/17 58/12 78/24 95/20 107/15 112/13 135/13 139/3 149/5 155/5 understanding [11] 12/15 48/16 53/13 55/23 57/15 73/11 75/25 79/4 107/25 110/24 111/21 understatement [1] 103/5 understood [4] 56/15 56/17 72/3 107/23 undertake [1] 95/22 undertaken [9] 85/6 85/24 87/6 87/6 113/4 134/8 134/20 142/12 143/5 undertaking [2] 2/10 114/21 undertook [1] 1/22 undoubtedly [1]	130/15 unfortunately [15] 37/14 41/16 44/19 45/5 47/4 47/15 48/22 77/18 100/22 101/7 103/12 123/22 125/14 154/13 160/25 unhappy [1] 120/9 unhelpful [4] 78/7 83/17 102/4 129/25 unintentionally [1] 95/1 Union [1] 157/6 unique [5] 44/9 71/23 118/1 161/2 161/2 unit [5] 6/16 16/2 104/10 113/11 135/25 United [1] 9/23 United Kingdom [1] 9/23 universal [5] 45/1 81/11 88/24 103/20 105/14 University [1] 97/9 unless [4] 66/21 96/6 108/12 109/8 unlikely [2] 47/22 149/24 unnecessary [3] 52/2 90/2 90/9 until [17] 2/18 2/25 4/10 16/2 45/21 76/4 78/1 107/12 109/22 132/14 133/22 136/21 141/12 151/6 153/2 155/2 162/12 untreated [3] 43/8 43/12 108/10 unusually [1] 52/19 unvarnished [1] 93/12 unwell [1] 104/12 up [66] 3/10 4/23 5/5 5/12 7/20 7/22 7/24 8/1 8/17 8/20 9/21 11/12 13/22 15/1 19/23 22/25 29/12 29/24 33/6 34/10 35/12 46/1 46/17 46/20 48/23 49/17 57/19 59/22 67/8 68/5 68/12 69/9 70/4 70/11 73/16 75/20 79/8 79/9 79/21 80/11 83/4 86/11 89/15 98/10 99/8 100/14 101/13 102/12 109/3 109/22 116/4 120/19 121/5 121/18 121/20 124/5 124/25 125/15 133/15 141/15 141/17 148/23 154/3 155/2 155/11	162/3 upon [9] 9/13 15/5 78/2 82/15 101/5 121/13 123/8 128/3 156/7 urge [1] 73/21 urgent [1] 32/6 urology [1] 10/25 us [31] 1/21 7/8 21/18 34/19 35/2 36/21 38/23 45/19 63/1 70/14 71/8 74/13 81/13 81/14 85/13 88/10 95/10 105/24 116/19 119/13 120/22 127/12 130/23 153/16 154/16 156/7 161/8 161/15 161/25 162/3 162/6 USA [1] 150/3 use [46] 6/11 8/19 13/5 18/12 21/1 21/4 21/16 21/16 21/22 22/15 24/6 25/15 25/23 26/21 26/24 27/6 27/9 28/1 28/2 28/7 30/20 30/21 30/22 31/4 32/14 36/2 37/3 41/23 43/1 50/22 72/5 75/20 77/5 79/17 94/10 100/20 108/15 110/17 110/18 111/24 124/12 125/4 131/22 140/18 140/19 141/1 used [28] 15/14 22/25 24/4 25/8 27/14 27/19 27/20 37/4 41/20 42/13 46/12 77/9 79/18 79/18 86/2 90/15 111/24 119/4 137/8 137/9 137/10 137/11 137/13 137/21 138/1 141/6 147/12 153/20 useful [3] 30/17 39/17 69/13 users [1] 63/2 uses [1] 159/11 using [10] 13/1 22/3 44/2 107/14 110/5 125/11 136/3 147/13 147/16 151/16 usually [16] 13/23 14/12 29/24 33/7 38/2 43/22 60/24 90/5 91/13 100/14 105/18 108/24 109/7 115/25 121/8 149/25 V vague [4] 25/1 27/24 32/2 39/17	valid [1] 58/7 valuable [3] 19/25 59/24 60/16 variant [1] 54/12 varied [1] 18/22 various [17] 1/22 17/10 19/14 20/19 20/20 35/20 36/14 40/11 42/22 47/8 53/16 58/19 73/15 100/11 130/18 141/22 155/5 vast [2] 3/19 112/4 VCI [1] 89/2 vehicles [1] 64/6 verbose [2] 139/9 160/11 verification [1] 127/22 verified [1] 159/13 very [223] veterinary [1] 132/6 via [1] 35/13 video [1] 108/25 view [16] 7/12 17/22 30/13 55/25 75/14 76/2 97/16 100/6 119/17 121/9 121/13 121/16 148/7 153/17 158/2 159/24 views [1] 161/14 VIII [11] 4/20 22/15 29/20 38/1 38/18 39/4 39/9 41/5 42/11 70/16 126/21 viral [3] 50/21 65/4 131/1 virally [1] 24/14 virologists [2] 90/20 131/4 virology [10] 10/6 82/25 83/4 83/10 83/11 83/12 84/24 90/14 104/25 155/3 virtually [3] 118/10 137/23 158/2 virus [13] 40/10 76/1 76/16 76/16 77/14 85/3 131/10 131/11 131/19 131/23 142/4 149/25 150/2 viruses [6] 40/5 40/11 50/24 131/17 132/18 132/20 visit [1] 135/25 visits [4] 11/13 79/23 88/17 89/16 vital [3] 23/11 87/13 118/21 vividly [1] 61/23 voice [1] 147/21 volition [1] 95/23 volume [3] 27/2 29/11
----------	--	--	--	---	---

V	ways [6] 19/7 36/14 46/14 94/24 118/23 161/9 we [367] we'd [1] 114/24 we'll [4] 24/23 38/13 38/20 48/2 we're [4] 62/24 121/8 123/9 149/20 we've [12] 32/16 36/19 37/14 57/5 60/9 107/21 116/2 124/7 131/9 145/18 158/18 161/10 wear [1] 65/19 Weatherall [1] 2/15 week [5] 8/21 13/14 13/16 34/19 88/21 weekend [2] 46/20 90/6 weekly [2] 33/20 80/13 weeks [8] 8/2 13/15 22/1 22/15 88/4 88/5 89/16 89/21 well [75] 1/20 3/22 7/1 8/14 10/21 12/4 13/13 15/9 18/7 18/22 19/23 23/9 25/5 25/13 27/12 28/5 29/5 31/19 35/11 37/22 39/4 40/9 40/17 41/12 48/18 51/12 60/21 68/12 69/25 75/5 77/8 78/8 78/20 80/21 84/5 87/9 87/17 88/8 89/2 90/6 103/11 106/5 106/6 107/5 110/13 111/2 112/16 114/2 114/10 126/15 127/2 127/4 127/5 127/15 136/11 140/9 145/11 145/18 147/12 147/21 147/22 148/7 151/24 152/25 154/21 155/22 156/2 156/22 156/25 157/7 157/8 157/25 159/25 160/9 161/6 well-being [1] 84/5 Welling [1] 119/12 welter [1] 78/6 went [8] 9/25 28/16 34/25 106/25 116/7 135/21 159/15 160/9 were [299] weren't [7] 69/11 71/11 83/6 112/25 116/23 117/8 136/6 west [4] 4/5 13/8 131/11 142/8 West Nile [1] 131/11 western [2] 13/25	87/19 what [172] what's [3] 36/24 71/22 82/11 whatever [21] 18/24 33/21 55/1 92/15 93/11 93/18 107/20 109/9 110/9 119/12 120/15 123/23 125/1 128/19 129/16 130/6 138/5 141/13 152/9 153/12 154/11 whatsoever [2] 23/17 116/13 when [88] 3/10 3/15 4/7 4/11 5/2 5/11 5/12 6/25 7/8 8/7 9/11 9/25 12/2 13/7 13/7 15/20 18/11 19/10 20/6 20/7 20/20 21/6 25/16 28/11 28/12 33/5 36/20 41/18 45/17 46/4 51/2 54/11 56/6 59/15 68/15 74/25 78/5 79/14 80/14 85/5 85/23 90/22 91/9 96/2 96/19 101/13 102/15 105/7 105/18 106/25 109/23 110/16 110/21 111/3 111/13 112/11 113/7 114/3 115/5 119/19 120/5 121/16 121/25 123/12 123/24 125/11 129/1 133/17 134/25 135/3 135/21 135/24 136/10 138/7 139/6 142/9 144/15 145/21 146/10 146/25 147/7 148/23 149/9 154/23 155/10 156/2 157/14 159/5 where [45] 10/8 11/15 21/10 27/4 27/15 27/16 29/5 34/3 47/12 54/24 55/12 55/15 55/17 74/1 78/19 83/5 83/6 84/21 84/23 84/25 90/1 96/10 104/20 107/2 110/11 110/17 113/3 117/3 119/2 120/14 121/1 121/3 121/4 127/12 128/16 130/11 134/7 135/23 145/11 148/14 153/9 154/16 157/15 158/19 159/4 whereas [3] 41/14 65/20 86/14 whereby [2] 6/6 99/6 whether [33] 6/21 11/10 33/4 33/6 36/6 39/8 39/13 40/3 68/1	74/10 74/22 75/25 77/9 86/1 87/5 87/25 91/7 95/22 95/23 105/22 106/8 106/9 106/12 108/2 115/1 126/8 133/16 144/3 145/12 152/6 152/7 153/8 154/11 which [172] while [3] 45/23 104/8 106/24 whilst [1] 59/23 whirlwind [1] 129/10 white [1] 145/1 Whittington [1] 119/12 who [108] 7/7 7/9 12/24 13/18 13/24 14/11 20/3 21/21 22/10 23/13 27/22 27/23 28/1 29/1 29/13 30/7 30/15 31/2 32/4 32/5 33/2 33/19 35/13 50/5 50/15 50/20 51/15 51/16 54/15 59/2 61/19 61/21 64/16 65/9 65/10 65/11 65/12 65/14 66/2 70/22 72/20 76/8 76/12 86/19 89/8 91/24 92/18 97/9 99/22 103/1 103/1 103/9 103/24 107/4 107/7 108/20 112/19 112/21 113/1 113/24 114/15 115/1 115/4 115/9 115/18 116/17 116/17 118/17 120/21 120/21 120/22 120/23 121/9 121/19 122/10 122/16 122/17 122/18 123/20 124/4 124/13 126/3 127/8 128/18 128/22 130/1 130/19 130/20 134/24 135/5 137/12 140/19 141/4 141/5 142/21 142/22 143/8 144/4 144/5 145/4 145/23 147/19 152/11 153/12 159/4 159/11 161/11 161/20 whole [12] 17/13 29/10 66/24 93/12 119/4 122/5 124/16 124/23 136/23 148/2 155/11 159/16 wholly [1] 125/3 whom [7] 51/14 60/13 64/3 112/22 112/22 112/23 113/24 whose [1] 1/11 why [17] 6/4 14/4 18/5	19/1 19/2 22/3 23/2 41/23 42/17 55/2 75/12 79/8 118/16 125/10 125/13 144/8 148/6 widely [6] 37/9 61/3 66/16 67/20 67/22 71/24 widespread [1] 9/23 wife [1] 5/4 will [32] 1/7 1/13 1/14 12/11 22/11 34/9 36/8 38/22 38/22 39/14 39/18 40/25 59/19 62/14 74/2 83/20 95/9 98/13 99/6 99/8 99/9 107/8 125/15 129/21 129/23 133/5 133/13 138/20 155/4 155/4 159/19 160/10 Willebrand's [3] 27/14 30/22 111/22 Willoughby [9] 5/16 6/4 13/19 18/4 21/21 26/5 135/1 135/8 136/21 Willoughby's [3] 9/14 12/13 12/16 willy [1] 92/24 willy-nilly [1] 92/24 winded [3] 53/6 76/20 104/3 wish [9] 23/2 28/4 30/13 34/1 65/1 84/4 85/25 96/4 126/12 wished [3] 24/7 27/23 28/1 with [316] within [31] 8/1 8/16 10/24 15/14 16/9 22/1 22/14 22/25 46/8 52/20 82/19 88/21 101/20 102/10 103/16 107/3 107/5 117/25 118/2 119/2 122/14 123/9 123/11 123/22 128/20 132/19 132/20 132/21 140/7 144/25 159/9 without [4] 52/1 55/14 84/10 89/10 WITN4183002 [1] 42/7 witness [2] 121/10 122/24 witnesses [2] 60/9 156/20 won't [3] 61/6 117/23 126/14 wonder [3] 39/13 39/17 133/16 wondered [1] 126/8 word [5] 22/14 40/12	41/21 41/24 74/16 words [6] 33/5 39/8 40/9 54/1 60/24 119/6 work [26] 2/2 2/10 2/20 7/17 7/18 12/3 15/11 26/6 26/9 26/12 28/10 57/3 91/2 96/24 97/14 99/10 100/5 114/2 122/5 125/20 130/11 138/22 141/13 141/19 141/20 145/6 work/family [1] 100/5 workaholic [2] 5/17 18/10 worked [20] 1/24 2/11 2/18 4/19 10/9 11/15 15/9 22/5 23/9 31/25 40/9 51/12 93/2 115/17 115/19 116/3 117/3 121/15 125/21 134/16 worker [10] 43/23 79/9 80/7 91/23 93/4 97/1 98/16 139/14 145/25 146/7 workers [4] 118/20 137/10 138/19 148/23 working [14] 4/18 26/10 26/14 26/18 57/6 68/2 68/6 73/14 111/17 141/3 141/11 156/22 158/10 161/21 workload [1] 38/23 world [10] 6/15 44/8 47/3 52/17 65/24 67/23 79/19 122/2 148/12 148/25 worried [2] 54/25 88/14 worry [2] 147/1 158/13 worrying [1] 51/10 worse [4] 37/23 131/17 132/25 135/8 worst [1] 160/23 worth [1] 106/13 would [155] 1/8 3/12 3/17 4/8 4/8 7/14 11/9 11/18 11/23 13/11 13/24 20/17 20/25 21/3 21/7 30/1 30/10 30/10 31/17 32/3 32/9 33/7 33/21 34/1 35/3 35/11 39/6 39/10 40/4 40/21 41/5 43/4 43/17 43/21 44/1 44/2 45/8 45/9 46/19 46/21 49/14 49/16 50/15 52/6 53/22 53/22 53/25 54/2 54/22 55/5 55/23 55/25 56/17 59/7 59/23 64/5 65/19
----------	---	--	--	---	---

W would... [98] 65/22 66/5 66/14 66/24 67/7 68/15 68/16 68/23 69/6 71/25 72/11 74/18 74/24 77/21 78/2 78/8 78/12 78/21 79/7 79/24 80/5 80/12 80/20 81/21 82/17 83/16 84/4 84/13 87/2 88/18 88/20 88/20 89/9 89/15 90/16 96/8 96/10 96/12 96/18 96/21 97/19 98/14 100/24 102/13 104/21 105/16 105/23 107/5 107/6 107/13 107/15 108/11 108/21 109/3 109/15 110/16 110/22 110/22 111/22 112/8 113/14 113/15 116/8 116/15 117/6 117/17 118/10 121/16 126/8 126/12 126/17 126/24 128/13 129/8 129/14 130/22 133/2 134/24 138/8 139/17 140/4 141/11 142/24 143/1 148/11 148/20 154/10 154/10 154/18 155/16 155/22 155/23 156/5 156/8 156/10 156/10 156/13 156/15 wouldn't [8] 31/6 31/15 34/25 66/4 66/22 69/12 88/3 117/18 wouldn't I [1] 117/18 write [2] 19/22 81/3 written [6] 19/12 39/11 64/20 80/21 111/12 111/20 wrong [4] 95/21 102/16 115/24 123/6 wrote [1] 26/20	71/4 83/22 91/10 106/7 107/12 109/10 111/18 112/12 135/25 146/25 149/14 149/16 150/10 150/16 151/7 151/21 Yeoman [1] 26/8 yes [92] 2/1 2/19 4/2 4/2 4/16 8/9 11/13 15/8 16/11 19/16 20/9 20/17 21/20 23/3 24/8 24/23 25/17 27/4 27/8 32/23 33/19 34/10 34/12 39/2 39/21 41/12 43/13 47/21 56/4 56/23 57/4 57/23 58/1 58/8 58/8 60/4 62/12 62/22 64/24 64/24 65/17 67/16 68/10 68/22 68/25 69/8 69/16 70/1 72/10 72/11 72/22 73/3 75/5 79/6 79/17 82/12 88/8 89/14 90/19 90/19 91/10 96/11 97/23 99/15 101/6 104/3 111/2 114/11 117/17 118/13 119/22 121/15 123/9 133/21 136/17 143/7 145/9 145/11 146/15 147/21 148/18 149/2 149/9 151/19 151/24 152/16 152/25 154/6 157/1 157/4 157/5 157/7 yesterday [6] 11/6 42/13 45/19 80/17 82/6 89/7 yet [6] 47/23 76/23 105/14 113/12 136/25 154/8 Yorkhill [38] 4/10 5/10 10/4 10/24 12/17 14/4 16/9 18/3 19/11 25/10 32/17 44/16 48/12 53/11 58/12 58/22 71/15 82/4 85/1 86/18 87/23 91/23 106/21 106/23 106/24 107/5 112/13 117/11 134/5 134/20 138/23 142/9 143/6 144/5 144/23 145/17 146/10 146/21 you [553] you'd [1] 54/1 you'll [2] 25/25 70/9 you're [10] 44/15 60/8 74/24 79/7 96/1 117/12 120/5 124/5 148/24 155/5 you've [11] 12/14 44/11 48/13 49/3	53/16 66/23 68/18 124/18 151/25 161/13 161/25 young [8] 23/8 30/15 91/19 92/17 108/22 108/25 109/5 109/6 youngest [1] 70/15 your [117] 1/11 1/22 2/2 2/8 2/16 2/20 3/10 5/10 5/12 5/12 10/3 10/3 12/15 15/3 17/2 18/18 18/19 19/14 21/19 24/15 24/16 25/12 25/14 27/9 28/5 28/6 31/2 31/21 36/23 38/13 39/19 41/4 41/8 44/11 44/15 48/9 48/10 48/15 49/4 53/13 55/13 55/23 55/25 56/22 57/1 57/14 57/15 57/17 57/19 58/12 58/21 60/6 62/20 64/21 65/8 66/12 66/12 69/6 75/9 79/16 80/10 81/21 82/1 82/11 84/8 86/23 88/6 89/18 95/20 96/23 96/23 101/2 105/1 106/3 107/21 107/25 110/24 111/17 112/12 116/7 119/17 121/10 122/24 122/24 124/5 124/10 124/19 126/6 126/11 127/24 134/5 137/6 140/17 141/19 142/10 142/11 143/5 143/6 143/24 144/20 146/12 147/17 149/5 150/15 153/2 153/16 156/21 157/10 157/10 160/24 161/14 161/19 161/22 161/25 161/25 162/3 162/4 yours [2] 24/19 161/10			
Y year [17] 3/6 3/21 4/2 11/19 11/24 11/25 13/14 51/19 51/22 52/20 76/4 92/15 92/15 109/12 112/5 126/25 146/20 year's [1] 127/3 years [40] 2/14 3/18 4/17 4/19 11/20 15/17 15/17 16/3 21/17 22/6 23/25 24/7 31/11 37/15 51/13 51/15 51/23 52/6 52/6 52/11 54/17 54/19 59/3 68/7		Z zero [1] 126/3 Zika [3] 131/10 149/25 150/2 zoom [1] 34/13 zoonosis [1] 132/9			

(67) would... - zoonosis